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REPORT
OF
THE NATIONAL COMMISSION
ON
URBANISATION

August 1988

VOLUME IV

WORKING GROUPS REPORTS

Vol. IV

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REPORT OF THE WORKING GROUP ON URBAN POVERTY

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INTRODUCTION

1.0 The Working Group on Urban Poverty was set up by the National Commission on Urbanisation under the communication of the Ministry of Urban Development (9th October 1986) following a detailed paper titled "A discussion note on the Urban Poor and a suggestive outline of work for the National Commission on Urbanisation on the poverty issue" prepared by Shri Kirtee Shah and Dr. S. C. Jain. The paper, while laying a framework on the issues to be examined, argued that understanding the nature and dimensions of urban poverty with a view to evolve responses that may reduce inequalities, remove hardships and improve quality of life of the disadvantaged sections should be an important item on the work agenda of the NCU. The NCU had also felt that understanding poverty and providing for the needs and aspirations of the poor was crucial to proper management of cities and that both the size of the poor population and the complexity of the poverty alleviation task demanded a priority attention to the subject.

2.0 The Working Group was assigned the following task:

- (a) To analyse the state of urban poverty with a view to understand its nature and complex interactions;
- (b) To evaluate the existing poverty alleviation programmes including institutional arrangements; and
- (c) To formulate strategies to deal with urban poverty.

3.0 Keeping in mind the task assigned to it the Working Group has attempted to answer the following questions:

- (a) What exactly is the existing state of urban poverty in India having regard to the definition adopted by the Planning Commission? Has its incidence increased?
- (b) What explains the growing number of urban poor?
- (c) What are the major manifestations of urban poverty? Can it be comprehended by income criteria alone or a multi-dimensional view, covering shelter and its environment, access to social services, infrastructural and social integration in addition to income and employment dimensions, is necessary?
- (d) What has been done so far to alleviate urban poverty? How far have the programmes gone in terms of coverage, scope, effectiveness and their impact on poverty situation? What problems and constraints are experienced during the process of implementation?
- (e) What are the institutional inadequacies? How does the implementation of existing legislation affect the urban poor?

4.0 The Working Group also examined the questions whether urban poverty is inevitable and whether it is feasible to eradicate poverty. The questions were phrased in this way:

- (f) Is urban poverty inevitable? Is it to be accepted that disparities will widen at the early stages of economic development? Should we take the position that in an economy where income distributions are shared, and where the state is soft, the fruits of development will continue to be unequally divided i.e. in favour of the upper income groups?
- (g) Is it possible to eliminate urban poverty? Can a basic living be provided to all, assuming that some disparities will persist?
- (h) If the answer to (f) is "No", and to (g) is "Yes", then what should be done in the short run/long run? What kind of programmes, what type of roles should be envisaged for the government, people, NGOs, and others committed to eliminate poverty? What scale of investment is required? Should these be viewed as direct transfers and subsidies? What basic changes in the existing institutional framework are required?
- (i) Is it realistic for us to treat urban poverty as urban development issue or a multilateral and multilevel effort?

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5.0 To help in its work the Working Group designed several studies and assigned them to reputed institutions in the country. The National Institute of Urban Affairs, Delhi prepared five studies:

(1) Approach to Urban Poverty: A Position Note (2) Dimension of Urban Poverty: A Situational Analysis (3) The Media on urban poverty* (4) Urban Poverty: A Study in Perceptions*, and (5) Who the Urban Poor Are, What they Do and Where They Live. The Centre for Environmental Planning and Technology, Ahmedabad examined "Urban Poverty in India: Policies and Programmes: A Review of Literature." And the Institute of Local Self Government at Bombay prepared "A Study on the Legislative and Institutional Environment Affecting the Urban Poor." The analysis of the situation and the set of recommendations elaborated in this report are based mainly on these studies.

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*Only these two studies were directly supported by NCU.

6.0 The Working Group also benefited from its meetings with a number of experts and interactions with knowledgable groups. The seminars and workshops on the urban poverty theme, specially arranged to facilitate interaction with academics, voluntary agencies, social activists and concerned citizens in Bangalore [by Institute for Cultural Research and Action (ICRA)]; Madras (by Dialogue Group); and Calcutta (by CMDA and a number of voluntary agencies) brought into focus a number of key policy and institutional issues. Field visits to study innovative programmes such as the Economic Supports and Community Health programme of CMDA; Sites and Services, Slum Improvement and employment oriented training programmes in Madras; and Urban Community Development Project in Hyderabad were educative. The data generated by the National Centre for Human Settlements and Environment for its "Study for the formulation of poverty alleviation programme" and the report were useful in making some specific suggestions.

7.0 All members of the Working Group contributed ideas and were available for meetings and consultations whenever required. However, Dr. O. P. Mathur of NIUA (Delhi), Dr. S. C. Jain of CEPT (Ahmedabad), Dr. V. Jagannathan of CMDA (Calcutta), Dr. Rajagopalachari of IMPACT Centre (Hyderabad) and Dr. Rakesh Mohan of Planning Commission deserve special mention for their time and energy in clarifying issues, developing ideas and preparing this report.

8.0 Special thanks are also due to UNICEF for making the services of its Urban Advisor, Dr. W. J. Cousins, available with the Group and also to Dr William J. Cousins for very valuable guidance at all stages of deliberations and preparation of this report.

9.0 Support and encouragement of NCU Secretariat is also acknowledged.

10.0 Help of Mrs. Usha Raghupathy of NIUA for participating in a number of sub-group meetings, Mr. Rajappon, R. of ASAG for typing and retyping this report; and of other staff members of ASAG for rendering logistical support in this work is gratefully acknowledged.

11.0 The Working Group is of the view that this effort and the report is only a beginning of the work to be done on this relatively unexplored topic. The magnitude of the problem, complexity of the issues involved and urgency of the situation demand a sustained, multi-level, quality effort. More resources and energies are needed to grasp depth of the issues and design proper, effective responses. And the subject deserves examination both from the government and the non-government agencies.

12.0 The following are the Members of the Working Group on Urban Poverty:

1.	Shri R. Basu	Executive Director (Personnel & Finance), Atomic Energy, Nuclear Power Board, Bombay	Member
2.	Shri. M.N. Buch	Chairman National Centre for Human Settlements & Environment, Bhopal	Member
3.	Shri V. Jagannathan	Secretary Calcutta Metropolitan Development Authority, Calcutta	Member
4.	Dr. S.C. Jain	Professor Centre for Environmental Planning & Technology, Ahmedabad	Member
5.	Shri Om Prakash Mathur	Director National Institute of Urban Affairs, New Delhi	Member
6.	Dr. Rakesh Mohan	Economic Advisor Planning Commission, New Delhi	Member
7.	Shri. T. Rajagopalachari	Ex-Director Urban Community Development Department, Hyderabad	Member
8.	Shri P. S. A. Sundaram	Administrator Maharashtra Housing & Area Development Authority, Bombay	Member
9.	Shri Kirtee Shah	Hon. Director Ahmedabad Study Action Group, Ahmedabad	Convenor

Ahmedabad
12 August 1988

KIRTEE SHAH
Convenor
Working Group on Urban Poverty

CHAPTER I

URBAN POVERTY : AN OVERVIEW

1.1. **Challenge**

1.1.1 The management of growth of cities—especially the metropolitan and other big size cities—in a manner that would ensure (a) an acceptable quality of environment and reasonable standard of living to their inhabitants, and (b) result in reduction of inequalities, is one of the formidable challenges before the planners, administrators and the people of the country. However, the most demanding of the urban challenges, unquestionably, is the challenge posed by urban poverty: *the challenge of reducing exploitation, relieving misery and creating more humane conditions for working, living* and *growth* for those disadvantaged people who have made the city their home already or are in the process of doing so. The task of *adequately feeding, educating, housing* and *employing* a large and rapidly growing member of under-nourished, semi-literate, semi-skilled, under-employed and impoverished city dwellers, who are living on pavements, in poorly serviced chawls, in unhygienic slums, in illegal squatters and other forms of degraded and inadequate settlements and who are struggling to make a living from low paying and unstable occupations, *in a reasonable time span, is the essence of development challenge facing the Indian planners today.*

1.1.2 If the present trends persist it is conceivable that in coming decades, as now, the urban landscape will continue to mirror, probably more glaringly, the ills and contradictions of the Indian society: economic disparities, social inequalities, cultural alienation and increasing deprivation for a large number of its people. In cities, there will be more skyscrapers and in them more spacious and luxurious apartments for a previleged few. But at the same time the number of these who "squat in squalor and drink from the drains" will also increase. The poor and the unskilled from the rural areas will continue to flock to big cities in the hope of employment and better life, only to add to the growing number of unemployed and further deterioration in the quality of city life.

1.1.3 There is considerably evidence to suggest *that the growth path selected by us has not led the poorest sections of population to better living standards nor has it led to reduction of inequalities in any visible manner.* The share of the poorest 30 per cent in the consumer expenditure has remained nearly stagnant during the period 1958-78. It is paradoxical that this should have happened despite the annual average rise of income by 3.5 per cent. An eminent jurist described this phenomenon sarcastically as a double process of growth of GNP: namely growth of Gross National Product and growth of Gross National Poverty at the same time! Since the accent of planning process in India, as in several other developing countries, is on improvement of living standards of the poorest groups in society and reduction of inequalities in asset distribution, the urban development policies demands a thorough re-examination and reorientation to achieve the goals of social justice.

1.1.4 *The official response to the phenomenon of urban poverty and the situation of urban poor*—which has decisively altered the visual land-scape, social fabric and overall charter of the Indian cities—*in form of policies, strategies, and programmes has been generally unimaginative, inadequate, half-hearted and sectoral.* Urban poor is usually equated with the slum dweller. Housing is perceived to be the slum dwellers' main problem. Till recently providing a pucca house was perceived to be its solution (until running out of money and realising that in the numbers game there was no chance of winning). Recent new responses like Sities and Services, Slum Improvement Urban Community Development Projects (UCD), Integrated Child Development Services (ICDS), Urban Basic Services, Mid-day Meal Scheme for the school children and Small and Medium Town's Development Programme represent a relatively better assessment of situation, more realistic attitude to resource constraints, a broader framework and probably a new awareness of social responsibility. However, most of them are at their early experimental stage; are not reaching even a small fraction of the people they are meant to cover and benefit; are often floundering on implementation front, and some of them are already showing signs of malfunctioning. These approaches, programmes and projects are certainly a hopeful sign and therefore deserve a proper try, careful monitoring and evaluation, re-design, strengthening, scaling up, and a fresh commitment. *The fact however, remains that considering the scale, complexity and gravity of the poverty situation and threat it poses to the social fabric and economic well-being of the cities and its citizens, the response is woefully inadequate.*

1.2 **Approaching Urban Poverty**

1.2.1 According to official estimates, approximately *27.7 per cent of the urban population falls below the poverty line. In 1987-88, this means that at least 57 million people living in cities are below the poverty line.* The Working Group feels that in modern day independent India, it is totally unacceptable that more than one out of every four urban citizens should continue to live below the subsistence level. This is particularly disturbing considering that the estimate of 27.7 per cent is very conservative, that the number of urban citizens is growing at an alarming rate daily and that a high proportion of this increase consists of the urban poor.

1.2.2 The NIUA study* on who the poor are concluded *that 68 per cent of their sample were women and children.* If one adds to this the aged and the disabled, who are not included in this figure, the *customary perception of the urban poor gets changed.* More important, any programme recommendation for alleviating poverty must take into account the special needs and conditions of these most vulnerable groups.

1.2.3 The picture is further complicated by the fact that a *significant proportion of the urban poor are also members of scheduled castes, tribes or minorities, which renders them doubly disadvantaged.* Thus any simple traditional prescriptions for alleviating poverty through programmes to increase the employment and/or incomes of poor urban men alone cannot possibly deal with the complex implications of urban poverty. Also, when the general category of the "urban poor" is disaggregated in this way, it not only penetrates the normal stereotypes of poor urban dwellers but also implies that *any strategy to ameliorate their situation must be a multifaceted one.* In addition to economic and physical poverty, such a strategy must attempt to deal with the *social, psychological* and *emotional aspects of poverty.*

1.2.4 It needs to be appreciated that *rural and urban poverty is inextricably inter-linked. But that does not mean that urban poverty is merely a spill-over of rural poverty. It is an autonomous, independent phenomenon.* No matter whatever employment programmes are started in rural areas, they cannot meet the need for creating tens of millions of new jobs. In coming two decades between 90 and 100 million people will probably migrate to urban areas with a consequent impact upon urban employment and urban poverty. Thus, *rural poverty and urban poverty must be seen and addressed simultaneously as two aspects of the same problem.*

1.2.5 While migration from rural areas makes up a large part of the increase in the urban population, the studies commissioned by the NCU indicate that *growth contributed by natural increase is still the dominant form.* According to an NIUA study, 41 per cent of the urban growth is due to natural increase, 38 per cent due to in-migration and 21 per cent due to reclassification of settlements**. One of the most significant implications of this finding is that not only must the government attempt to retard the flow of rural migrants to metropolitan cities, but it *must also seriously address the problem of population increase in urban areas through more effective family planning and child spacing programmes.*

1.2.6 Although, the poor suffer from extreme deprivations wherever they are found, whether in rural or urban areas, *in many ways the urban poor are different from the rural poor.* They tend to be more heterogenous which makes their problems more difficult to approach. Obviously also the population density in poor urban areas and the lack of basic services such as water and sanitation exacerbate the problems and the living conditions of the poor in urban areas.

1.2.7 Poverty cannot be characterized adequately in terms of income, expenditure or consumption patterns alone; since poverty is complex in meaning, texture, characteristics, impact and implications. *The focus should be on the human degradation resulting from poverty, not merely on numbers.* Thus what is required is a multi-dimensional concept inclusive of the environment, access to services and social and psychological supports. The Commission suspects that poverty has increased in the urban areas although some official figures do not show it. This seems especially true in case of access to services.

1.2.8 Urban poverty is too complex and important to be left to those technically responsible for 'urban development'. *The responsibility is global and therefore all macro policies and programmes must be systematically examined for their positive and negative effects upon urban poverty and the urban poor.*

1.3 Changing Dimensions of urban poverty

1.3.1 The present estimate† of poverty are based on the average calorie intake of the household. Expenditure groups in which the average daily calorie intake of household members is below 2140 calories in urban areas are counted as belonging to 'Below Poverty Line'.** *This uni-dimensional definition of poverty is inadequate.* Urbanites suffer from very serious forms of shelter and environmental deprivation, the most acute forms of which are visible in slums. The Urban Poverty Survey by the National Institute of Urban Affairs (1987) shows that in low income neighbourhoods about 60% of the families above poverty line (APL) were living in kutcha houses and suffering from the same forms of environmental degradation as the families living below poverty line (BPL) did. *The household income concept of poverty thus misses the environmental and shelter characteristics of neighbourhoods* which constitute the crux of physical poverty of APL and BPL alike. The urban poverty phenomenon, therefore, is required to be approached from the '*household income*' as well as '*neighbourhood characteristics*' angles.

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*Who are the Poor, What do They do, Where do They Live?—NIUA, 1988

**"State of India's Urbanisation" National Institute of Urban Affairs, New Delhi, 1988

†The Working Group on Poverty, which has examined the existing official definition of 'poverty' is of the view that the present definition is inadequate. It does not encompass the multi-dimensional nature of poverty. It has, however, not attempted to develop an authoritative new definition considering the nature and depth of research effort required for such an effort, the Working Group is of the view that it should be take up by the Planning Commission, Universities and research institutions as an important item of their study agenda.

‡The Planning Commission's definition of Poverty Line is the mid-point of monthly per capita expenditure class having daily calorie intake of 2400 per person in rural areas and 2140 per person in urban areas."

1.3.2 While a combination of 'household' and 'neighbourhood' approach is necessary, the validity of household income approach (as a proxy to expenditure level) is undeniable for policy formulation purposes. According to the 38th N.S.S.O. round (1983-84), an expenditure level of Rs. 122 per month per capita was required to reach the desired level of calories at 1984-85 price levels. By this definition the percentage of people below the poverty line in urban areas was approximately 27.7. This shows a decline in percentage terms of urban poverty by 13.5 points within a short period of 12 years, i.e. 1972-1984, since according to N.S.S.O. 32nd round this percentage was 41.2 in 1972-73. However, in absolute numbers, there has been an increase in the number of people below the poverty line. *As against* 51.1 *million persons estimated to be below the poverty line in* 1977-78, *the number estimated to be below the poverty line in* 1987-88 *is about* 57 *million.*

1.3.3 However, according to the estimates of the Central Statistical Organisation, there has been only a marginal change in the urban poverty situation: the percentage of people below the poverty line having been reduced from 56% in 1977-78 to 53% in 1983, and being practically at the same level as it was in 1972-73. A comparison of the estimates of the N.S.S.O. and C.S.O. is given in the Table below:

Estimate of Poverty 1972-1985 *by NSSO & CSO*

Year	Poverty ratio		Per capita per month poverty line income	
	NSSO*	CSO**	NSSO	CSO
1972-73	0.41	0.53	63.73	51.75
1977-78	0.38	0.55	71.3*	62.53
1979-80	0.40	0.56	88.0	81.00
1984-85	0.28	0.53	122.0*	136.75

Table 3.1 NIUA-ibid-the point is for 1978. Household size is assumed to consist of 5 members.

1.3.4 While the poverty line indicated in C.S.O. estimates is slightly higher as compared to the one given under the Seventh Plan on an assumed average household size of five, the variation in proportion is enormous. This is not the place to go into the details of reconciliation of differences between N.S.S.O. data-based estimates and C.S.O. data-based estimates. *It is enough to warn against the sense of complacency which might be induced as a result of adjustments at the margin of the poverty line which, comprises a large proportion of the population.*

1.4 **Urban Poverty: distributional aspects**

While approaching the issue of urban poverty the household characteristics regional variations as well as occupational and income variations should be taken into account.

1.4.1 The NIUA study found the average size of poor household to be 5.91 members, which is about 10.7 per cent higher than the average size of 5.54 for all population in their study sample. This was largely because of a higher proportion of juveniles in poor households (46.05 per cent as against the general average of 39.04 per cent). However, the child workers' proportion in poor households was as high as 0.16 per household or about 11 per cent of the total workers in these households. About 78.6 per cent of child workers were found to be working in the informal sector. The over all rate of unemployment was found to be 11.3 per cent of labour force in poor families which was higher as compared to that of the whole sample (8.8 per cent).

1.4.2 **Regional Variations.** Another important features of the urban poverty scene is wide regional variations in performance on anti-poverty front. There are states such as Kerala, Haryana and Madhya Pradesh which have shed more than 15 urban poverty points during the period 1977—83 while states such as Punjab, Uttar Pradesh, Bihar, Maharashtra, Rajasthan and West Bengal show below average performances. It is not industrial backwardness alone which accounts for slow progress, because states such as West Bengal and Maharashtra also have shown below-average level performance. The causes of regional variations need to be studied carefully to identify the factors which enhance or impede good performance. *At the same time these regional variations imply a need for flexibility in the approach. Uniform programme patterns are likely to be unworkable in alleviating urban poverty.*

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*It will be seen that except for 83-84, N.S.S.O. poverty line figure has been higher as compared to C.S.O. figure computed as above. In 83-84 it is lower because of an adjustment factor which was incorporated in N.S.S.O. data. The NIUA data shows that an adjustment in 18% of the poverty line would take away about 43.3% of the poverty line household beyond BPL classification. The reported adjust was somewhat higher than this.

**Raghvendra Rao: "Measurement of Poverty and Inequality",Central Statistical Organisation Training Division, Page 21. The poverty line figures has been obtained by adjusting the poverty line figures of Rs. 25 per capita per month as per high power group recommendations in 60-61 to industrial labour consumer price index (1960—100).

1.4.3 **Occupational and Income Variations.** A study by National Centre for Human Settlements and Environment (Bhopal) on formulation of poverty alleviation programmes for the Planning Commission concludes that *eighteen occupational categories* account for the bulk of the workers belonging to poverty households and about 50 occupational categories account for 90 per cent of the total workers. They are in *transport* (cycle-rickshaw, auto rickshaw head loaders, light vehicle drivers), *construction* (brick-layers painters, carpenters, casual labourers, etc.), *business* and *manufacturing attached to micro units.*

1.4.4 The distribution of workers in occupational categories shows wide variation in income. The NCHSE study reports the following average family incomes:

*Distribution of Urban Poor Workers in Occupational Categories and Average Monthly Income**

Category of Workers	*Average Monthly Income*
Skilled (motor driver, mechanic, repairer, electric fitter, plumber, bricklayer, carpenters, etc.)	Rs. 587.00
Semi-Skilled	Rs. 512.00
Unskilled (Loaders, Casual Labourer, Street Vendor, Domestic Servant, Sweeper, etc.)	Rs. 440.00

**Source:* National Centre for Human Settlements & Environment—A study for the formulation of poverty alleviation programme, Bhopal, 1987.

1.4.5 Such variations in household income levels below the poverty line are also reflected in the TISS study which classifies the poor households in six income groups ranging from Rs. 50 per capita per month (Group-I) to more than Rs. 100 per capita per month (Group-II). Since the per capita per month income of Rs. 122 is defined as the urban poverty line, we might classify the urban poor in three categories according to the level of per capita income of the households.

(a) those having a per capita per month income of less than Rs. 50 at 84-85 prices may be regarded as very poor.

(b) those between Rs. 51—100 as poor, and

(c) those between Rs. 100—122 as marginally poor.

1.4.6 The TISS* study found the relative situation as below:

Classification of Urban Poor in Bombay According to level of Per Capita Income

Per Capita	Per Month	Percentage Household Population	 Houseless Population
Less than	Rs. 50	3.8	14.2
	Rs. 50-100	24.6	44.3
	Rs. 100-200	17.1	20.6
Over	Rs. 200	54.55	19.9
	Mean	204.82	113.58
	S.D.	134.46	76.53

1.4.7 The NIUA study shows that 51.67 per cent of the poor households have per capita income below Rs. 100 per month while 48.33 per cent are between Rs. 100-122. This means that a small shift downward in the definition of the poverty line would significantly reduce the numbers of households called "poor", even though their living conditions remain the same. This is an indication of the narrowness and the inadequacy of the current definition of poverty. The housed sample contained 28.4 per cent of poor or very poor households but this percentage was 58.5 per cent in the houseless sample. It clearly shows

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*Tata Institute of Social Sciences; Nature of Poverty in Bombay, Muthaya and Yazur : March, 1987.

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that the houseless population constitutes the poorest of the poor households in urban areas. The mean income of the housed group is 55.4 per cent of the mean income of the housed group.

1.4.8 **Poverty and Caste.** The data shows that there is a *much higher incidence of poverty among scheduled castes and scheduled tribes than their proportions in the general population of a city.* The following data from a Hyderabad study† illustrates this by comparing the percentages of scheduled castes and scheduled tribes in the slum population with those in the District. As can be seen it ranges from more than three times as much in the case of scheduled castes to over ten times in the case of scheduled tribes. Social discrimination in addition to low incomes interfere with their access to job opportunities and social contacts.

Percentage of SC and ST Population: Comparison between Hyderabad slums and the District Population

Category	Percentage of Dist. Population	Slum Population
Scheduled Caste	10.0	35.5
Scheduled Tribe	0.6	7.0

1.4.9 **Intra-Family Inequities : Women and Children:** *Even within the family there are inequities.* In a situation of deprivation, the male being the principal earning members receives preference in terms of food quantity while the woman as a housekeeper has to satisfy hereself with whatever is left after the males and senior ones have been served. Even if the household head earns more than a poverty line income the amount made available for running the household kitchen might be too small, with the consequence that women still have to live under conditions of nutritional deprivation. Exact data is not available about calories according to gender and age-groups but the assumption of intra-family inequities in distribution is highly plausible. *This justfies case for strengthening existing nutritional and educational programmes for vulnerable groups of women and children* over and above the poverty alleviation programmes designed on a household basis: especially in view of the fact that only 15 per cent of the children in the age group 0-6 are nutritionally normal in urban slums. *There is no doubt about gender gaps in education.* The female literacy rate of 65.8 per cent. Case study data shows the *gap to be larger in slum areas.*

1.4.10 **Intra-city Distribution.** Not all of the urban poor live in slums and shanty towns and not all of those who live in slums and shanty towns are poor. The poor can often be found distributed throughout a city; living in servants' quarters chawls, small quarter settlements and on pavements. Very often they are found in middle class and affluent areas where they perform needed services for well-to-do people as domestic servants, drivers, malis, sweepers, dhobies, etc. On the other hand, because of the extreme shortages of housing and the increasing levels of rent—especially in metropolitan cities—a significant proportion of slum households consists of people whose incomes technically would place them above the poverty level, but because of their inadequate shelter, lack of basic services, environmental degradation in which they live, by many definitions and certainly by inspection, they would be characterised as lower middle class. However, they have obligations, ideas about living standards of dress and cleanliness, and have to fulfill family responsibilities beyond the members of their immediate households.

1.4.11 **Shelter and poverty**

The following table taken from the NIUA on Urban Poverty shows a relationships between type of housing and the poor and the non-poor in low income neighbourhoods.

Relationship between type of Housing and Poor and Non-Poor Percentages in Low Income Neighbourhoods

Type of dwelling units	Total	Percentage	
		Non-Poor (N=448)	Poor (N=449)
Pucca	9.48	42.50	6.46
Semi-pucca	24.97	27.68	22.27
Kutcha	65.55	59.82	71.27

These are areas of poverty within a common milieu. If kutcha huts were taken to represent a condition of relatively more acute physical deprivation, the poverty percentage should have been 65.6 per cent. On the other hand the income criteria yielded the percentage of about 50 per cent. Even among those who were poor in income terms, as many as 6.46 per cent had *pucca* homes, which normally would not be accompanied by the same degree of physical deprivation as those with kutcha dwellings. Thus the relationship between income and physical deprivation is close but a substantial number of cases of acute physical deprivation would fall outside the income definition of poverty.

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†Rajagopalachari : Study of Pattern of Employment and Unemployment among SC and ST of Hyderabad: Council for Social Development, 1985.

1.5 Perception of the Poor

1.5.1 The vulnerability of the income concept of shifts in bases (year of comparison selected, household or population indicator, monetary level of poverty line) is so serious that Wolf Scott declares it to be nearly a useless tool in an economy characterised by high degree of subsistence and seasonality. It is however, desirable to keep it because the poor themselves regard low income wages as the main cause of poverty.

1.5.2 The review of perception studies shows that a vast majority (89.3 per cent of the very poor and 64.8 per cent of the other poor in the Bombay study) feel that the situation has remained stagnant or deteriorated. The outlook of the Bombay sample is quite pessimistic. Of the 240 respondents, 171 (71.2 per cent) felt that their poverty would continue. The principal reasons given were: low wages incomes, lack of employment opportunities, lack of skills and education and inflation.

1.5.3 The review of the literature on problem-perception shows further that lack of income irregular and poorly paid employment, poor shelter and sanitation, lack of basic physical amenities like water come to the top. Health, educational backwardness of the child and family relations also receive mention. At the neighbourhood level, the Baroda study mentions alcoholism, gambling and anti-social activities also as problems perceived by respondents. However, about three-fourths of the respondents also feel the presence of friendly and supportive individuals in the neighbourhood.

1.5.4 *The fact that poor households find themselves in a multi-problem situation calls for a multi-pronged service design converging at the household level.* This would suggest need for a multi-purpose worker with information and ability to facilitate assistance from various development departments and agencies and an area level organisation for coordinating the working of various services.

1.6 The Twin Causes of Poverty

1.6.1 "*The twin causes of poverty are under-development and inequality.* It is inadmissible to ignore or under-play either factor". declares the approach paper on the Fifth Plan. Strengthening forces of growth is necessary to remove forces of under development and release development potential. The development of resource potential can itself become a cause of inequality, because the community resources and incentives will have to be provided on priority basis to the few who can organise land, labour, capital and social infrastructure. Thus an increase in equality and therefore, its inevitability—at least during the transitional period—is postulated by some scholars. The inequality thus produced can be functional, temporary and self-terminating, or cumulative, self-perpetuating and disfunctional; depending upon the objectives of those who are allowed to organise the resources, and the nature of the output which becomes available.

1.6.2 An increase in inequality however, does not necessarily imply an increase in poverty which means provision of basic goods and services needed for human survival and reproduction. A society can be launched on a development path in such a manner that it pays first attention to these basic goods and services. Transitional inequality then becomes a condition for removing poverty. There is evidence of such a process occurring in rural India. Punjab and Haryana, home of the Green Revolution, have also recorded the lowest scores of rural poverty; even though there was a slight increase in a given coefficient of inequality, periods of good production have also been periods of reduction in the percentage of rural households below the poverty line. A strategy focussed on the expansion of irrigation and priority to food production have thus produced both growth and a reduction of poverty. It has also enabled the country to launch a food for work programme on a gigantic scale to augment employment for landless.

1.6.3 Economic growth, on the other hand, can also siphon away the meagre resources which are available for production of "*need goods*" by intensifying the unequal competition for scarce resources such as water and bio-mass in favour of '*want goods*'. This would impoverish the environment for those who are engaged in the production of 'need goods' and may reduce the supply if production resources are diverted towards luxury and comfort items. *Mis-directed development can become a cause of rural and urban poverty.* A high growth in the production of cars, luxury hotels, air traffic, ostentatious buildings, etc. shows that "development" may cause resource depletion for the goods needed by the masses. Strategies calculated to produce basic need goods (such as housing for low and lower middle income groups in urban areas) could produce growth, employment and social justice through their indigenous backward and forward linkages. This would have an impact on the physical forms of poverty, as compared to investment on five star hotels.

1.6.4 Inequality in a society governed by tradition or unequal wealth and political power relationships is likely to end up putting resources in the hands of those who are not necessarily competent to develop them for the good of the society and may thus cause mis-development. *Changes in the relationships so that resources are managed by those who can develop them for the good of the society would thus remove the conditions of under-development and subsequently, poverty.* However, through historical reasons if some sections or the population have been deprived of the necessities of life and opportunity for participation, learning and personal development, they are likely to suffer from a permanent handicap to entitlement, while those who have the advantage would continue to claim the entitlement. In the Indian situation, the scheduled castes, scheduled tribes and women constitutes such groups. *Unless the historical trends are reversed by suitable structural changes, the disadvantaged sections will continue to live in a status of under-development.* The urban melting pot has dissolved to some extent the ritual symbols of inequality but economic disabilities persist and get translated into the poor quality of shelter environment. A large majority of poor live in slums and chawls and are engaged in low paid jobs or petty non-formal enterprises. *Women also* continue to suffer from *historical disabilities.* Since the mind bodypower of people is the most valuable resource of any society, their under-development is bound to perpetuate poverty. *Poverty is a cost which is unaffordable by a development conscious society. The constitutional directive that material resources of the community should be so distributed* that they subserve the common good is not only an *anti-poverty bulwark but a charter of growth.*

CHAPTER II

MANIFESTATIONS OF URBAN POVERTY

2.0 Manifestation of Urban Poverty

2.1.1 Urban Poverty manifests itself, in many forms. The most visible forms are:

(a) Proliferation of slums and bustees

(b) Fast growth of informal sector

(c) Increasing casualisation and under-employment of labour

(d) Crushing pressure on civic services

(e) High rate of educational and health contingencies coupled with underutilisation of social services.

(f) Undergrowth of physical and mental capacities and degradation of human resources

(g) Growing sense of hopelessness, rising crime rates and group violence.

2.2 Growth of Slum and Bustees

2.2.1 The poor cannot afford to pay the growing market rates of pucca shelter or buy land at the fabulous prices near the workplaces. They cannot afford the cost of transporting themselves or their saleswares over long distances. They, therefore, settle on marginal lands near their workplaces, which are otherwise considered unfit for habitation by non-poor classes. Examples might be; banks of river, margins of nulla and drainage, marginal railway lands, swamps etc. The construction is made from cheap scrap and salvaged material like gunny bags, tarpaulin, scrapped tin sheets, wooden planks etc. The habitat is irregular as it is unplanned. The civic amenities are minimal. As a result the sanitation and personal hygiene nearly breaks down.

2.2.2 The growth of slums, is therefore, a sign of inability of people to afford land and shelter through normal market participation where they find themselves out priced and failure of the government to regulate urban resources in such a way that poor can have equitable access to the same, corresponding to the labour reproduction needs. The estimates of slum population vary. However, its growth is dramatically highlighted by some examples. In Calcutta roughly 35 per cent of the city's population lives in identified slums but it is estimated that population of all slums and squatters settlements exceeds 50 per cent of the total population of the city. According to a handbook of National Building Organisation (1982-83) 67 per cent of the households in Calcutta lived in one room units. In Madras about 38 per cent of the population was living in declared slums in 1971 and 54 per cent of the households were living in one room dwellings. In Hyderabad the slum population jumped from one lakh in 1962 to a staggering figure of 5 lakhs by 1981. In Delhi the squatter households are estimated to have grown from 12,741 in 1951 to 1.13 lakhs during 1975-76.

2.3 Growth of Informal Sector

2.3.1 While population growth in urban areas through natural causes and migration from rural areas as well as small towns continues unabated at approximately 4 per cent annually, the capacity of urban areas to create jobs well above the poverty line in the formal sector, has been dwindling. The *capital intensity of modern urban enterprises, industrial location policy energy crises, industrial sickness, labour unrest, restrictive legislation, frozen housing activity and low level of investment in the development of urban infrastructure and services* have colluded to keep down the growth of urban employment. A non-formal sector has been growing in inter-stitial spaces of economic activities ignored or exploited by the formal sector. It includes waste collection and recycling, shelter development in marginal and ordinarily uninhabitable lands, cart and lorry transport, low cost catering services, repair and maintenance services, street vending, etc. The size of the sector is variously estimated for different centres. According to Papola and Kashyap* 52 per cent of Ahmedabad city's labour force was engaged in the informal sector in 84-85. An ORG Study** put the size of the informal sector at 50 per cent for Madras in 1979. Problems of definition and measurement notwithstanding, most scholars now agree that the informal sector is growing much faster than the formal sector.

2.3.2 According to an ORG Study (1978), about two-thirds of the poor households are engaged in the informal sector with capital investments averaging about Rs. 400/- per worker as against Rs. 12,000/- in the organised sector. They receive a net annual income of Rs. 1500/- per worker (at '78 prices) as compared to Rs. 8500/- in the formal sector. The income-investment ratio in informal sector activities turns out to be 3.6 as against 0.71 in formal sector according to the same study.

2.4 Increasing casualisation and Under-employment of Labour

2.4.1 There is also increasing casualisation of labour and persistence of under-employment in urban areas. According to Sarvekshana. (April 1986) the percentage of casual labour increased from 13.2 per cent to

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*Papola and Kashyap "Facets of Urban Economy" : Sardar Patel Institute of Social and Economic Research, Thaltej, Ahmedabad.

**Operations Research Group (ORG), *Economic Policy.*

14.75 per cent in the case of males and 25.59 per cent to 27.27 per cent in the case of females during 77-78 period. The percentage of unemployed as measured by current day status during the same period increased from 5.35 per cent to 5.45 per cent for males although it decreased from 2.11 per cent to 1.72 per cent for females. Child labour accounts for nearly a million and a half workers in urban areas and continues to constitute about 8 per cent of employed males and about 7 per cent of employed females. Unemployment amongst the educated, especially graduates, is very high in the age-group 15-29 years. In Madras it was found to be 20 per cent for males and 15 per cent for females.*

2.5 Crushing pressure on civic amenities

2.5.1 The civic authorities are finding themselves increasingly incapable of providing civic amenities to a larger influx of population within their boundaries. The population, being poor, is unable to recycle the cost of such services which have to be supported from State grants or taxation of a narrow base of tax payers. The per capita water consumption was reported to be between 16-23 litres per day in slum areas in Bangalore. The number of persons per tap varied between 40 to 428 in the same city. According to the report of the Task Force of Planning Commission on Financing of Urban Development, 31.2 per cent of the urban population was not covered by sanitation services. According to DDA study of 28,100 squatter households (1986), a hut of 2.5 × 3 metres accommodated about 4 persons. About 50 per cent of dwellers were using open areas for cleaning their body.

2.6 High rate of education and health contingencies

2.6.1 According to Census of India the urban literacy rate was 57.4 per cent. However, the literacy rate of people below poverty line was estimated to be 28.1 per cent according to NIUA data sheet 1986 and 26 per cent in slum areas according to the Task Force on Housing and Urban Development of the Planning Commission. About 91 per cent of the squatters were returned as illiterate in the DDA Survey of 30,000 squatter households in Delhi (1983). In a case study by Baroda Citizens Council, the health contingency rate in slum area was found to be 425 per thousand of population [(Vijayvadi), 1988] during the year 87-88. Amongst children it was 276/1000 in a non-ICDS Slum as compared to 57/1000 in another low income neighbourhood which was covered by ICDS Scheme. According to a study on disability conducted by the same organisation the incidence of disability was about three and a half time in poor habitations as compared to the overall city average.

2.7 Undergrowth of physical and mental capacities and degradation of human resources

2.7.1 Even though the poor spend over 70 per cent of their income on food and its supplement, it is still inadequate to meet their nutritional needs. The signs of undernourishment could be seen in emaciated, pot-bellied, short-statured, under-weight children and their mothers with dried up breasts and haggardly look even in the young age. Some of the findings are shocking.

2.7.2 According to Seventh Five Year Plan document less than 15 per cent of the children could be considered as having normal status of nutrition, the rest suffer from varying degrees of under-nutrition. According to another study of slum children in India, S. D. Singh and K. P. Pothar (1982) found that 50 per cent of the expectant mothers suffered from nutritional anaemia resulting in low weight of babies at birth.

2.8 Growing sense of hopelessness, rising growth of crime rates and group violence

2.8.1 The sense of hopelessness is expressing itself in an outlook of stagnation. According to a study by Tata Institute of Social Sciences (Bombay), 89.3 per cent of the very poor and 64.8 per cent of the poor respondents of their sample feel that the situation during the last 5 years had remained stagnant or deteriorated. The failure of coping mechanism is partly expressed in escapist behaviour—increase consumption of liquor and hallucinatory drugs which by several accounts, is increasing in slum areas. Precise figure for crime and group violence are not available separately for poor and non-poor neighbourhood, but the case studies have documented that underlying flare-up of communal violence in Ahmedabad and Baroda were the activities of anti-social gangs of slum areas to carry on their power struggle. A similar phenomena of the involvement of under-world has been brought out in other case studies of group violences in the city. The frustration—aggression syndrome has been posited as a hypothesis which can be traced to conditions of severe physical and economic poverty and social deprivation from which inhabitants in poor neighbourhoods suffer most.

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*Sarvekshana, October 1986.

CHAPTER III

POLICIES AND PROGRAMMES FOR URBAN POVERTY ALLEVIATION

3.1 Can Urban Poverty be Eliminated?

3.1.1 The Working Group has concluded that the answer is a clear "yes". Massive urban poverty can be eliminated within existing resources, but it will require:

Strong political will

Bureaucratic or administrative will

Honest people's involvement

The encouragement of decentralised initiative and local flexibility.

A built-in capacity to learn while doing, and

A crisis approach.

3.1.2 A Garibi Hatao programme in urban areas should be taken up with utmost urgency for at least three reasons :

The problem is not going away and as urbanisation increases, so will be problems associated with urban poverty.

These portend grave political, social and economic consequences for the nation, if not addressed.

No healthy national development is possible as long as crores of the nations' urban children and women remain in absolute poverty.

3.2 India's Experience and Resources

3.2.1. India has had rich experience in programmes for the amelioration of poverty; so little is required which is new. What is needed is the more effective and widespread application of the measures and approaches which have proven to be most effective.

3.2.2 One of India's greatest resources is its people—including the urban poor. They have always demonstrated enormous resilience and creative energy in meeting their needs in the face of extreme deprivation and adversity. The challenge now is to help facilitate, reinforce and channel this energy to ameliorate the situation of all of the urban poor.

3.3 Guiding Principles

3.3.1 Thus the issue ultimately is not whether the massive and growing urban poverty can be eliminated, but how and how soon can it be done. Some of the guiding principles which the Working Group suggests are:

(a) Universal coverage of all the poor

(b) Convergence of services

(c) Development of the people themselves at every stage

(d) Use of low cost methods

(e) Flexible adaptation of programmes to local conditions.

(f) Focus on the most vulnerable groups such as children, women, scheduled castes and tribes, minorities, the aged, the disabled and the shelterless.

3.4 Specifics

3.4.1 Let us consider some specifics. The official poverty concept is focused around nutritional adequacy—2100 calories of intake per capita or an income of Rs. 122 p.c. p.m. Both of these goals are attainable in the near future if proper policies are followed. The nutritional gap of the urban poor population approximates 400 calories, which can be covered by assuring an extra good intake of about 100 grams of cereals. This is about 36 kg. per capita per year. Assuming the poor population to be around 60 million at the beginning of Eighth Plan, it will mean an extra food grain flow of 2.16 million tons for the urban poor. The warehouses of the nation had a stock of nearly 23 million tons of food-grains in March '87. More than Rs. 410 crore worth of it were written off due to storing and transport losses during the last 3 years. Is it not a travesty of policy that nutritional poverty should exist amidst such plenty?

3.4.2 Not only, does the coexistence of hunger and brimming graneries represent a paradox, but the planning of food production growth of about 4 per cent annually would be un-sustainable if demand for extra food is not created by putting purchasing power in the hands of the poor, whose demand for food far surpasses that of the affluent. The foodgrain export alternative is immoral and politically dangerous, if millions are hungry at home. The focus of food security has shifted from the production domain into the distribution domain.

3.4.3 We may look at the problem from the income angle. The average increase in income required to raise the urban poor above the poverty line is 31 per cent. The current poverty line has been fixed at Rs. 122 p.c. p.m. while the average income among the poor stands at Rs. 94 p.c. p.m. the gap of Rs. 28 p.c. p.m. would require a monthly income flow of about Rs. 168 crores or about Rs. 2016 crores annually for the urban poor to bridge the gap. The IIIR ratio, in most cases of occupational activities followed by the urban poor stands close to one. If an investment flow of a like amount is assured it should make a dent on the problem of urban poverty. It does not come to even one per cent of the national income. Political will should not be found lacking in the country to make these marginal resource allocation efforts in view of the goal of eliminating poverty by the end of the century.

3.4.4 The removal of physical poverty might take longer because the backlog is huge and institutional rigidities are formidable. Once policy is oriented towards the production of needed goods first, these will begin to loosen. The costs of continuing conditions of immiseration are not only not permissible in terms of under-development of a most precious urban resource, that is body, mind, energy, but they may assume enormous proportions if peace and political stability is endangered by rising waves of urban discontent. Ahmedabad city for example, lost several hundred crores of its income during the recent riots. If the smouldering discontent explodes in the most visible pockets of concentrated poverty in large cities, normal industrial and commercial activity would become impossible. Losses may run into thousands of crores. Is it necessary to incur these loss by refusing to make even marginal adjustments in plan outlays in favour of the urban poor and correct the directions of development while there is still time?

3.5 Migration and Urban Poverty: Need for a Unified Policy Framework for Rural and Urban Poverty:

3.5.1 Before closing this discussion it is necessary to examine the question whether the cities can solve their problem of poverty if migration continues undiminished and whether it is realistic to talk of poverty alleviation. Municipal resources are unable to expand infrastructure facilities at the rate required to keep pace with the increasing numbers. Even if a majority of existing households were helped to rise above the poverty line in an improved environment, the fresh entrants would submerge these gains.

3.5.2 The Indian metropolitan cities, capital region, state capital towns, and medium size regional cities absorb large influx of migrant population which come in search of employment opportunities. However, judging by the experience of other developing countries this influx is moderate. According to NIUA data sheets, migration accounted for only 38 per cent of the urban growth during the period 61—81. On the other hand natural increase accounted for 41 per cent while the remaining is accounted for by reclassification and boundary changes. Migrants can be viewed as resources rather than liabilities if an organised strategy for more appropriate distribution of these human resources corresponding to production possibilities and needs of regions can be worked out. Poverty alleviation strategies could include projects for industrial colonisation as well as preventive strategies in migration-prone areas such as the employment generation schemes, SMTD, investment in irrigation and social forestry, extension of family planning and social education. These, however, require integration of rural and urban poverty and development policies.

3.5.3 The integration of rural and urban poverty alleviation policies and programmes will have to be attempted at all levels of planning and policymaking. At the local level of planning in Mandal, taluka or district, the growth centre approach might be a good starting point for coordinating the National Programme of Rural Employment (and the proposed programme of Wage Employment for the Urban Poor). Most of the Mandal and Taluka headquarters can be covered within the scope of the integrated programme in which economic infrastructure (Mandi-development site, mini production centres, shopping clusters and roads leading to them), can be given first attention. Common infrastructure services such as water works, schools, dispensaries, libraries can also be constructed. Creation of economic opportunities near home would encourage rural migrants to settle in these Manditowns. The Government in the meantime should move steadily towards, decentralisation of several of its functions up to mandal level. The moving of the office and services would provide purchasing power for the development of a tiny tertiary sector. Rural housing programmes can also be linked with the development of Mandal and Taluka towns.

3.5.4 District towns provide scope for integrated planning through the district planning board which should be visualised as a common body for urban and rural planning in the district. The poverty alleviation planning cell and implementing division should be common for both. It would have on staff expenditure as well as provide for supplemental economics in the supply of water, housing, sanitation, energy and transport services which will have to be planned as common resources.

3.5.5 The Metropolitan Regional Planning Authorities (MRPA) are not able to function as development bodies unless statutes empower them to do so. The CMDA has taken over Bustee Development functions and shown a good deal of dynamism in its performance. The Regional Planning, however, is not focussed upon the basic socio-economic goals of poverty alleviation. MRPAs are basically physical planning oriented organisations concerned with land, zoning, traffic circulation, etc. Physical Planning is important but its direct contribution to socio-economic objectives of poverty alleviation is doubtful. In fact, the evidence points to adverse consequences arising from adoption of overby high standards and artificial segregation of activities and functions. The metropolitan planning and development organisation will have to be oriented towards the common policy objectives of poverty alleviation, employment promotion and productivity development and translate these objectives into the various tools and regulative mechanisms of physical, economic and social planning in an integrated way.

3.5.6 At the central level a unified frame of poverty alleviation planning at the Planning Commision level can obviate many conflicts and ensure supplementary and complementary economics. Food production, pricing and distribution is a basic area where conflicts between producers and consumers need to be resolved.

Use of land and water for competing uses also requires conflict resolution. There could be a common framework of policies for a national programme of wage employment for the poor, credit support, resource conservation and human resource development. The most important intervention is on rent, wage, interest and profit relations. Clear perspectives are necessary here. The share of wage incomes has to go up, if the masses of working people are to get better returns for their only resource, namely, labour. Apart from macro-considerations, the wage differentials between various types of labour need to be scrutinised rationally. The present differentials are more a product of group-power relations than productivity considerations. Corrections of inequalities would go to the very root of the causes of migration. Migration is not the product of income inequalities alone but it is also a produce of social inequalities and urban biases in education.

3.5.7 The idea of dovetailing investment planning with spatial and social planning has to be pursued in concreate ways. If planning for population distribution accompanies investment planning much of the irrationalities in the present distribution will be brought under control.

3.6 Five Year Plans and Urban Poverty

3.6.1 Poverty removal is a dominant objective in India's development strategy appeared initially in the Five Year Plan, (1974—79). The Fifth Plan recognised the existence of large scale poverty in India, and observed that despite the sizeable gains of economic development and improvement in the living standards during the two decades of planning, "large numbers have remained poor." It noted that the consumption levels of the bottom 30 per cent of the country's population with their share of only 13.46 per cent of the total private consumption, remained far below the minimum of Rs. 40.6 (1972-73 prices) required to stay just above the poverty line. There were wide disparities in the consumption levels which together with widespread poverty held "a potential threat to the unity, integrity and independence of the country." Elimination of poverty must, therefore, have the highest priority.*

3.6.2 The Fifth Five Year Plan, however, made no distinction between rural and urban poverty. Apart from stressing the need to enable the poor to have access to the minimum private consumption of at least Rs. 40.6, and to raise the share of the bottom 30 per cent in total private consumption to about 21.98 per cent, it proposed no nation-wide programme for poverty alleviation. The Fifth Plan sought to reduce its incidence via the economic growth processes and national level programmes such as the Minimum Needs Programme (MNP), Public procurement and distribution of essential goods, and reservations for scheduled castes, tribes and other backward classes.

3.6.3 It was the Sixth Five Year Plan, 1980—85 which marked, in a sense, the commencement of a more definite approach to poverty issues in the country. For one thing, it recognised the limits of the "income growth" approach to reducing the incidence of poverty, and pointed out that in light of the past experience, that is, growth not trickling down to the lower-income strata, "it will not be realistic to rely solely on the growth process to find a solution to this problem. Specific policy measures will be needed not only to influence the composition of output in favour of mass consumption goods but also to ensure a more even regional and class distribution of output."@

3.6.4 Placing a very high priority on alleviation of poverty, the Sixth Plan approached the problem in three stages:

identification and measurement
developing realistic targets
formulation of specific programmes to match the targets

3.6.5 Using the norms recommended by the Task Force on Projections of Minimum Needs and Effective Consumption Demand, and utilising the NSS data on household consumption expenditure, the Sixth Plan observed that nearly 50 per cent of the country's population was living below the poverty line continuously over a long period. It pointed out that with growth and distribution policies and specific programmes to reach the poor directly, it should be possible to bring down the percentage of the poor from 48.44 in 1979-80 to 30 in 1984-85. Table 7 gives the Sixth Plan projected data.£

Table 7

Consumer Expenditure of Persons below the Poverty Line 1979-80 *and* 1984-85

Area	Average Monthly per capital Consumption (Rs. at 1979-80 prices)		Persons (Millions)	
	1979-80	1984-85	1979-80	1984-85
Rural	51.27	60.31	259.56 (50.70)**	166.02 (30.00)
Urban	58.75	64.09	57.28 (40.31)	49.14 (30.00)
Total	52.80	61.17	316.84 (84.44)	215.16 (30.16)

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*Planning Commission, *Draft Five Year Plan*, 1974-79, p. 6-8. *New Delhi*. 1973.

@Planning Commission, Sixth Five Year Plan, 1980-85, P. 51, New Delhi, 1980.

£Source *Sixth Five Year Plan*, Table 3.35 and 3.37, P. 52.

**Figures in brackets are percentage of people below the poverty line.

3.6.6 The Sixth Five Year Plan identified specific "poverty groups". A number of programmes aimed to reach those groups such as the Integrated Rural Development Programme (IRDP), National Rural Employment Programme (NREP), Rural Landless Employment Guarantee Programme (RLEGP) and many other area based programmes came to be either set up or reinforced during this period.

3.6.7 Like the preceding Five Year Plan, the Sixth Plan too did not directly address the urban poverty issues. In fact, it continued to display a distinct bias in favour of rural poverty. The following quote from the Sixth Plan is relevant here.

"The majority of the poor live in the rural areas and belong to the categories of landless labourers, small and marginal farmers, rural artisans including fishermen, and backward classes and backward tribes. These people have either no assets or assets with very low productivity, few relevant skills and no regular full time jobs or very low paid jobs."*

3.6.8 The Sixth Plan, however, provided for moving nearly 6.1 million of the total urban poor above the poverty line, essentially through the provision of "additional consumption benefits" and better and more equitable distribution of health, education sanitation, housing and drinking water, and slum upgrading and environmental improvement programmes.

3.6.9 The Seventh Five Year Plan, 1985—90, constitutes the first conscious attempt to address urban poverty issues directly. There are two features of the Seventh Plan approach that need to be especially highlighted. Firstly, it takes explicit note of the "growing incidence of poverty in urban areas," and points out that the persistent migration from rural areas has led, on the one hand, to rapid growth of slums in many cities and towns, and, on the other hand, to overcrowding in relatively unskilled and low paid jobs in the informal sector." The Seventh Plan accordingly places considerable emphasis on "improvement in the living conditions of slum dwellers." It further notes that in order to be effective, the problem of urban poverty would require a major thrust towards employment generation and creation of productive jobs. This forms the second feature of the Seventh Plan approach.

3.6.10 In the line with this major thrust, the Seventh Plan has proposed a strategy that includes:**

provision of gainful employment to the unemployed, particularly women and youth;

raising the earnings of those in low paid jobs; stepping up productivity and earnings of self-employed workers; and

improving access of the urban poor to basic amenities such as education, health care, sanitation and safe drinking water.

3.7 Review of the programmes for the urban poor:

3.7.1 The Working Group has examined the available evidence on the impact of the various programmes—centrally sponsored, state-sponsored and locally initiated. It has also reviewed some of the programmes in the field. Results are mixed but the overall conclusions are:

the reach of the programme is limited

there is a high degree of inflexibility

there is a lack of convergence of programmes even the real targets are missed

most (barring Hyderabad/Vizag UCD Projects) programmes are still working on a laboratory scale.

At the same time the Working Group is aware of the highly effective and innovative programmes in some of the cities. Examples being: the Sites and Services and Slum Improvement Projects in Madras; Small Loan Programme and Community Health Scheme of Calcutta Metropolitan Development Authority; the Urban Community Development projects in Hyderabad and Visakhapatnam and low cost sanitation schemes in Patna and other cities.

3.7.2 The major programmes for amelioration of urban poverty can be grouped into:

shelter and physical environment related programmes

nutrition supplement programmes including public distribution

programmes for employment generation

programmes for the development of citizen participation and development of institutional capacities of services agencies.

3.8 Shelter related programme

3.8.1 Among the shelter related programmes, slum eradication had featured as a key approach during the First and Second Plan. In view of resources limitations, resistance of local populations to shifting and maintenance failures, *the approach was abandoned in favour of Slum Improvement and Sites and Services Schemes.* About 15.6 million slum dwellers are believed to have benefited already under the Slum Improvement Scheme. The Seventh Plan aims at securing coverage of about 9 million slum dwellers during plan period at an average per capita expenditure of Rs. 300/- and 8.5 million during subsequent plans. This is expected to achieve the coverage of the entire urban slum population by 1990. Considering the growth of the slum population between the first year of the Fifth Plan and the end of the Seventh Plan, the coverage may turn out to be only about seventy per cent of the total: while the old slums relapse to un-improved conditions because of maintenance failures.

**Sixth Five Year Plan* P. 51.

**Planning Commission, *Seventh Five Year Plan*, 1985—90 *Vol.* 1, p. 34 *New Delhi*, 1985.

3.8.2 The EWS Housing programme has succeeded in construction of 65,432 shelter units in the public sector during the Sixth Plan period 80—85. The goal for the Seventh Plan is a little higher. It is hoped that LICm recycling of funds and fresh operations might put together resources of about Rs. 800 crores for HUDCO for supporting EWS and low income housing schemes. This may suffice for the construction of about 0.33 million units and about one lakh plots. The yearly rate is unlikely to exceed 50,000 EWS and LIG units and about 20,000 plots even if the targets are fully achieved. The National Buildings Organisation has estimated that as of March, 1981 *about 0.2 million units were needed for the houseless, who should be given first priority who live in kutcha* units. This number is likely to grow from 3.1 millon to 3.4 million units by 1987, if the past trend is any guide. The houseless population grew at a decennial rate of 32 per cent during 71—81 and 58 per cent during 61—71. Besides the urban poor are also concentrated in bustees and chawls and large families of 6-7 persons are living in congested one room structures. *The congestion is increasing due to the immiserisation process, immigration from outside and population growth from within.* Thus, even though the public policy response to the housing needs of the urban poor has improved it cannot meet more than 10 per cent of the backlog. Even that is likely to be overtaken by the fast growth of the houseless population and the growth of sub-standard housing units.

3.8.3 **Water Supply and Sanitation:** The programmes of water supply and sanitation have made progress but the rate is slow and the urban population without access to potable water and sanitary latrines is increasing in number. By the end of the Seventh Plan about 72.9 per cent of the urban population was covered by the provision of water supply while this figure was 77.8 per cent in 1981. As regards sanitation the overall coverage was low (28.4 per cent). Although it represents a marginal improvement from the 1981 level (27 per cent), *the overall number not having access increased by* 36 *million.* Besides, in the case of areas with high concentrations of the urban poor, such facilities have lagged far behind the norms. Not only the percentage of persons having access to potable water supply is lower, but the per capita level of water consumption is very uneven.*

In the case of toilets also the poorer households lag behind the general average due to insecurity of tenure, lack of capital, lack of housing space, low water availability and lack of access to trunk infrastructure.

3.9 Nutrition, Public Distribution: General programmes of Child Development

3.9.1 Programmes of nutrition have been significantly expanded in the Seventh Plan. The Special Nutrition Programme (SNP) and Mid-day-Meal (MDM) are proposed to be integrated with ICDS. The expected coverage of beneficiaries is likely to be 11 million children and pregnant mothers under SNP and about 5 million children under MDM by the end of the year 1990.

3.9.2 The public distribution system also aims at providing a balanced diet at reasonable prices in the endemic, poverty-stricken, malnourished and undernourished parts of the country. *Even this limited concept of public distribution is not realised in practice.* The review of the literature shows that offtakes from public distribution system have been utilised proportionately more in urban areas than in rural areas in per capita terms. Andhra Pradesh has used its public distribution system both extensively and intensively to distribute about 5 kilos of rice per capita per month to an individual family subject to a ceiling of 25 kg. along with other essential goods such as sugar, wheat, palm oil (upto a ceiling of 2 kgs.), coarse cloth, kerosene, etc. A review of case studies of the public distribution system of Andhra Pradesh shows that the urban poor families meet about 40 per cent of their actual needs from the public distribution system. The public distribution system has almost a token function in most of the other states.

3.10 Child Development

3.10.1 Among the general programmes of child development, the spread of free education has certainly brought benefits nearer to the urban poor. The wide gaps in literacy levels between the urban poor and the rest of the population are closing. However, due to economic and social reasons the drop-out rate is higher among the urban poor. While the literacy rate in the general population is found to be 57.4 per cent it was 28.1 per cent amongst urban poor.@ The quality of schools where poor children go is often below average with the result that the entry rate of primary pass student to secondary schools is very much lower.

3.10.2 The ICDS programme is primarily concentrated in the rural areas especially tribal belts, where incidence of malnutrition among children is very high. Assuming that 11 per cent of the project beneficiaries—being the proportion of urban projects to the total projects—belong to urban poor households, the expected number of beneficiaries from urban poor households might be about 1.2 million children under SNP and about half a million children under MDM.** This needs to be seen against the infant and school going population of about 23 million among the urban poor even if the low official claim about the incidents urban poverty is accepted. However, if the alternate estimates are used, the poor child population might be about twice this number. Health Services have improved in pilot project areas thanks to intensive efforts of ICDS, UBS and UCD projects, but these still have not approached national coverage. Taking the incidence of child is exposed, the Baroda Study *found nearly 43 per thousand amongst the poor population, against 12 per thousand in the general population.

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*According to a Bangalore Study (1985) by Dr. D.K. Subramaniyam, the number of persons varies from 40 to 50 450 per water tap; per capita water supply varies from 20 litres a day to 119.5 litres per day. The urban poor are not at the lower end. In the case of squattre settlements, this may be due to the "illegal" status of the community, its distant location from the water mains or scarcity of public taps.

@NIUA Data Sheet 1986—Ibid

**Urban Poverty in India—Review of Policies and Programmes, OPCT, 1987.

3.11. Employment Generation and Employment Oriented Training Programmes:

3.11.1 The Madras Slum Clearance Board implements a programme of employment training for slum dwellers. The Madhya Pradesh Government has also set up a programme called STEPUP (Special Training and Employment Programmes for Urban poor.). The CMDA operates an economic support programme for bustee dwellers which is very similar in nature to SEPUP. Even if beneficiaries of all these programmes are added together the total will not exceed 0.3 *million beneficiaries in a year.*

3.11.2 **SEPUP:** Recently the Government of India has started a Self Employment Programme for the Urban Poor (SEPUP) by earmarking a sum of Rs. 200 crores as credit to be distributed to the urban poor entrepreneurs whose incomes do not exceed Rs. 600 per month. The maximum credit available is Rs. 5,000. The list of economic activities for which loans are available contains 35 items covering activities like hawking on handlorry, laundry, welding, cycle rickshaw, shoemaking, hair-dressing etc.

3.11.3 The SEPUP was started only in September 1986. It has been able to provide loan assistance to only 0.26 million beneficiaries. It is difficult to make statements about income gains and recovery percentages in the absence of evaluation data. The review of evaluation literature on DRI programmes which is a programme of similar nature puts the figure of those who receive loans but, in fact did not satisfy the income criteria at around 72 per cent. The percentage of defaulters was 47.8 per cent although the proportion of overdue amount was only 16.9 per cent. However, its income impact was favourable, with IIIR ratio being 1.0587 per annum.

3.11.4 **CMDA's Income Supporting Programmes:** The CMDA claims the recovery percentage to be around 70 per cent. The income impact in the selected cases seems to be close to what was found in the review of literature—IIIR ratio being close to 1.0. The employment training did not necessarily lead to employment in all cases. The success ratio was close to 50 per cent with per capita training expenditure being close to Rs. 1000 including stipends paid during the training period.

3.12. Participatory Programmes

3.12.1 Urban Community Development was started as a pilot project as early as in 1959. However, only very few pilot projects survives. In 1981 the Urban Community Development, Low Cost Sanitation and Small and Medium Town Development projects supported by UNICEF were merged into a new service called Urban Basic Services (UBS). The aim of the UBS is to promote citizen participation, strengthen the service capabilities of local bodies in working with people on community felt needs bring about convergence of services and coordinate resource of various agencies for the purpose. Child and women care service receive special attention to improve chances of survival of children and develop their learning potential. The UBS projects are still on pilot scale, with 200 towns and cities to be included in the Seventh Plan period. The institutional base is so weak that it is difficult even to identify the urban poor with a view to beaming the programme benefits on them, but the emphasis is upon the participatory approach more than on the programme components. A national programme cannot be mounted unless institutional framework is broad and strong enough to bring the citizens and serving agencies together to pool their resources and work cooperatively for the achievement of what are essentially common goals.

3.13. Perceptions of benefits reaching the Poor

3.13.1 The NIUA study on perceptions of urban poverty found that 50.4 per cent of their sample households drawn from the urban poor in 20 cities did not receive any benefits out of dozen programmes listed in the study. A majority of those who reported benefits, derived them from activity of local government such as water connection, sanitary connection of electricity for the locality (27.5 per cent, 4.58 per cent and 1.25 per cent respectively). Land and shelter programme benefits were mentioned by 10 per cent. Immunisation, Balwadi, School and Community hall which go with urban basic services activities were mentioned by 4.1 per cent, 3.3 per cent and 3.3 per cent respectively. Of the credit support programmes (SEPUP and DRI Schemes), loans from bank was mentioned by 8.3 per cent while about 0.8 per cent mentioned HUDCO loans. The picture pointed in the report is somewhat optimistic because in the selection of areas almost an equal weightage was given to those areas which had received benefits. In actual practice areas where benefits have not reached at all or have reached only marginally are very large. Since these are under-represented in the sample, the true proportion of urban poor benefiting from the programme is much lower.

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*Tuctama Patel—Report on disability of children in Service areas of Baroda Citizen Council, memeographed, 1986, Baroda Citizens Council, Health Museum, Vadodara.

3.13.2 Whatever the precise numbers those who have not received programme benefits constitute a large majority of the urban poor. Of the reasons for programmes not reaching the poor, the most frequently mentioned six reasons as perceived by respondents are given below:

Reasons for programmes not reaching the Poor

Reasons	Poor (N=190)	Total Sample (N=335)
Corruption	31.6	43.0
Lack of proper Publicity	13.2	19.1
Lack of administrative commitment, inefficiency	1.6	28.1
Poor Implementation	10.5	23.0
Political interference	1.6	9.2
Lack of Funds	..	7·5
Beneficiary ill defined	6.8	5.7

Corruption occupies the position among the reasons for programmes not reaching the poor according to the perceptions of poor and non-poor alike. Lack of publicity stands out as other reason. Poor implementation is agreed to as another important reason for why benefits do not reach the poor. Lack of administrative commitment and inefficiency as a cause of blockage of programme benefit is mentioned by professionals and officials as an important reason, who also point to political interference and lack of funds. These perceptions are much less frequently mentioned by the sample of poor who do not have the experience of the inner working of programme implementation mechanics.

CHAPTER IV

A NEW DEAL FOR THE URBAN POOR : RECOMMENDATIONS FOR ACTION

4.1 Summary of Programmes, costs and benefits

4.1.1 Bold, intensive and coordinated efforts are needed to improve the incomes and consumption levels of the bottom 30 per cent of the population, extend their access to basic environment and social services, and ensure their better utilization. For the purpose a thirteen point programme package, to be implemented over the next two plan periods, is recommended. Besides specific programmes and their cost, the institutional set up and administrative arrangements required to deliver the package effectively are also suggested. The package, containing the following thirteen programmes for the urban poor, outlines intervention strategies in the (i) income and employment (ii) basic services (iii) shelter (iv) public distribution (v) social security and (vi) NGO areas. Programme for enhancement of incomes and employment opportunities:

(1) National programme of employment training for urban poor youth.

(2) National programme of credit support for expanding micro-enterprises and technological upgradation.

(3) Micro enterprise infrastructure development supports marketing and production centres).

(4) Marketing development supports.

(5) New programmes of public assets creation for promoting wage employment for urban poor.

Extension of Basic Services

(6) Universalisation of Urban Community Development (UCD) and Urban Basic Services (UBS) activities.

(7) Educational supports for extension of family planning and maternal and child health services.

(8) Intensification of non-formal educational for school drop-outs and working women.

(9) Slum Improvement, Shelter Upgradation, Sites and Services Schemes, land supply, tenurial security and facilitation through participatory approaches and NGO involvement.

(10) Extension of public distribution system.

(11) Extension of family security programme.

(12) Support for innovative programmes of voluntary agencies.

(13) Support for training and action research in urban poverty.

4.1.2 The programme package will require an outlay of Rs. 10750 crores for a period of five years. This includes a sum of Rs. 6000 crores to be advanced as loans through reindication of the lending priorities of the financial institutions.

Thus the public exchequer has to provide a sum of only Rs. 4750 crores over a period of five years or Rs. 950 crores annually, out of which Rs. 450 crores are to be found by earmarkings from existing schemes while Rs. 500 crores are to be provided for the new schemes—principally for public assets creation programme through wage employment for urban poor. The nodal ministry will be directly responsible for administering a provision of Rs. 2500 crores for new programmes while the other ministries will find Rs. 2250 crores by prioritising their existing schemes in favour of urban poor beneficiaries. They will administer the same through Urban Community Development and Urban Basic Services Departments at local level which should be regarded as a common service arm of the departments serving the urban poor.

4.1.3 The programme would bring substantial income and employment benefits to 4.4 million families while about 6.3 million families will receive multiple service benefits. A total of 10.7 million families would thus benefit through the programme.

4.2 Questions and assumptions

4.2.1 Accepting the goal of reducing urban poverty to 10 per cent by 1995. the Working Group considered these questions:

(a) Is poverty inevitable?

(b) Can urban poverty be eliminated in the foreseeable future?

(c) How can we address the needs of the especially vulnerable segments of the poor, such as children, women and the disabled?

(d) How is it possible to increase:

The productive employment of the poor?

Their access to basic services ?

4.2.2 The programme package described here is based on the assumption that it is possible in the long run—say three plan periods—to eliminate poverty; and in the short run, one to two plan periods, to alleviate it substantially. This can be done by increasing the real income and employment and the access to services of the bottom 30 per cent of the urban population. This assumes a continuing strengthening of the political and administrative will to allocate/re-allocate recources and implement projects. It also assumes that

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appropriate institutional structures will be devised, that the costs will be within the available means, and that there would be genuine involvement of the people in the process. It is also based on the understanding that the government can move from a patron/client relationship with the urban poor and from the role of provider to the role of catalytic agent, enabler and partner; since poor people actually are meeting most of their own needs now no matter how inadequately. This does not reduce government responsibility, but rather, re-defines it.

Recommended programmes

4.3 National Programme of Employment Training for Urban Poor Youth

4.3.1 Due to grinding poverty inherited from generations, urban poor youth lack educational opportunities in the formative years of their childhood. This renders them incapable of raising themselves from the status of an unskilled urban worker, often with only casual employment, and little chance of developing self-employment enterprises. The poverty stamps on them a mark of occupational immobility and permanent deprivation. One way of breaking this vicious cycle is the non-formal programmes of skill development. Tamil Nadu Slum Clearance Board* operates one such programmes of training for employment. Young boys and girls selected from slum areas are given stipend to learn skills in several modern trades and callings, in various private and government training institutions. The Tamil Nadu experience shows that the cost of training urban poor youth through non-formal course work is about Rs. 1000 per trainee. About 60 per cent of trainees find job in various firms after completing this training or engage in self-employment. In designing such programmes care should be taken to select trades and callings which have a demand in the local market.

Under the proposed National programme of employment training for urban poor youth it is recommended to train about 2 lakh young persons annually from urban poor households (about 2 million youth over a ten year period). This would reduce poverty by about 5.4 points assuming that about 60 per cent of those who are trained would get a job placement or would start their own enterprise after training. The rest would get immediate relief through stipendary incomes and might find indirect uses of skills learnt by them.

4.3.2 The proposed training programmes should embrace not only manufacturing trades but also skills needed for the tertiary sector—e.g. domestic service, creche and Balwadi teaching, health visiting, nursing, vending, self-help house building, plumbing, electrical fitting and repairs, small savings and insurance organisation for the urban poor, repair and maintenance work, auxiliary social work and social fact-finding. Consultants and trainers should be drawn not only from formally trained professionals but also from amongst the poor themselves who have made very successful ventures out of the skills being taught. In many cases the government would do well to concentrate on functional objectives rather than rigidly adhering to formal qualifications, pay, space and equipment standards. Most of the services can become affordable and generate their income momentum from the community itself, if the State concerns itself with encouraging and strengthening local initiatives, improving their quality and making them self-reliant rather than regulating them from remote centres.

4.4 National Programme of Credit Support for expanding micro enterprises and technological upgradation

4.4.1 The coverage of Self-Emplyoment Programme for urban Poor (SEPUP) needs to be broadened by setting apart about 5 per cent of total bank lending under priority sector for urban poor over a period of 5 years.† The step-up could be gradual, say, rising by one per cent every year. In the interim period the infrastructure should be build-up. The ceiling may be increased from Rs. 5000 to Rs. 10000 for fixed assets and Rs. 3000 for working capital with provision for composition of loan at household level for more than one earner provided earning activities are different. The interest and subsidy may be graduated so that small loans enjoy lower rates of interest and higher subsidy, while higher loans carry higher rates of interests and lower subsidy. The physical target would require doubling, excluding loans for entrepreneurs selected for taking possession of micro units of infrastructure offered under the micro-infrastructural development programme.

4.4.2 The credit requirement of the non-formal sector is comparatively smaller, the average is likely to be Rs. 4000 per loan. The cross-country study by the ILO** also finds the credit requirement in the range of $ 200-300 in most of the cases which is a fraction of what is required for formal sector.

4.4.3 The goal of diverting credit flows towards supporting economic activities of the poor should be persued with firm determination. The urban poor entrepreneurs have pointed to lack of credit as the most important constraint to expansion of their business. It need hardly be pointed out that the lesson of integrating a short term credit with marketing of goods and long term credit for upgrading production infrastructure applies with equal force here as it does in the case of rural credit.

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*The Community Development Wing of Tamil Nadu Slum Clearance Board runs an employment training programme. Till March 1987, the number of trained young persons, who are drawn from slum areas, was reported to be 4935 distributed over a large number of trades — the most popular being driving, wiremanship, and welding amongst males and tailoring, handicraft, electronics, nursing aides and creche teacher amongst females. The department selects existing training institutions run by trusts or government department for imparting training and pays them stipenses and training expenses on the basis of norms fixed in advance for this purpose.

†Small Scale Entrepreneurs programme (SSEP) was initiated by CMDA (Cacutta Metropolitan Development Authority) in 1976 to support economic activities of slum dwellers. The programme covered 3911 beneficiaries with a loan disbursement of Rs. 0.91 crores. The target for CUDP Phase III is to cover 42600 beneficiaries with a loan amount of about Rs. 21.17 crores, part of which is to be made available under differential rate of interest.

**U U. Sethuraman, Urban Informal Sector in Developing Countries, ILO, Geneva - 1981 - p.194.

4.4.4 The present manner of loan distribution, through advertisements and loan melas, is extremely unsatisfactory and is likely to bring disrepute to the programme as a political handout rather than a serious socio-economic programme with proper appraisal, follow-up, marketing and design assistance and recyclement. Abuses are likely to assume scandalous proportions and recoveries may drop to very low levels if the programme managers do not have direct contact with clients and the community work link in missing. The constitution of a Small Enterprise Development Bank, with a seed capital of about Rs. 100 crores, which can be subsequently enhanced through issue of public loans, deposits, contributions etc. is strongly endorsed.

4.6.2 Micro infrastructural support is essentially meant to be a device to expand the business of local producing groups. However, social entrepreneurial development for handling marketing responsibilities is essential if the intentions behind the proposal are to be adequately realised. The Khadi Gramodyog Board, Apna Bazar, Consumer Co-operative and the fair price shop system, supported by Department of Civil Supplies need to be involved to identify products which can sell through these outlets on reasonable terms. The provision of additional working capital need to be made for maintaining additional inventory and organising sales efforts.

4.6.3 There can be also informal selling arrangements. So long as they are fair and reasonable, they are perfectly in order. The producers' groups, however, will have to be organised into co-operative forms so that they can bid for bulk government purchases—price preference and facilities being given to such co-operatives to produce articles of desired standards. To impart a sense of direction and urgency, even targets can be set and monitored for a state supported co-operative and purchase system regarding the quantum of goods to be purchased by them from approved organisation of very small producers for eventual sale to the public.

4.7. National Programme of Public Assets Creation for Providing Wage Employment Amongst Urban poor.

4.7.1 Expansion of wage employment is needed for those who do not opt for self-employment ventures. The small and medium towns which require investment in public works on a vast scale offer suitable opportunities for launching such a programme. Compared to rural works these are likely to be more material intensive. However, this only adds to indirect employment multiplication, if the materials (bricks, stone, lime etc.) are produced through labour intensive technique and transported by using surplus capacity of carts, rickshaws, etc. Since there are considerable local skills in urban areas, the chain employment effect should be properly taken into account in assessing this scheme. Labour intensive repair and maintenance of physical infrastructure and services can also be planned as part of a national programme of public asset creation for providing wage employment amongst urban poor. Priority could also be given to construction of micro-infrastructural units discussed earlier. If properly coordinated, the rural employment programmes would also get a boost as a result of this activity. It is recommended that a beginning be made by allotting an outlay of Rs. 2000 crores for the new programme of public asset creation for promoting wage employment amongst urban poor over the Eighth Plan. (The NREP and RLEGP outlays are likely to exceed Rs. 900 crores during Seventh Plan). At a rate of about Rs. 40 per manday, this would create about 100 million mandays of work every year.

4.7.2 While possibilities of land and water resource development, construction of roads and common amenities and development of self-help and mutual-aid housing with the help of labour intensive techniques would favour small and medium town development projects, projects of labour intensity could be found in the larger cities also. Rationalisation of non-labour elements will be necessary to demonstrate the claims of such projects for eligibility under this programme as also to satisfy efficiency criteria.

4.7.3 The more important effect of the public asset creation programme would be to maintain the minimum wage level as prescribed by laws without relying excessively on enforcement machinery with its restrictive effects and liability to leakage. The pumping of purchasing power into the hands of the poor would stimulate demand for wage goods which would revive the sectors of the economy producing the same basic goods. A production orientation of this type is necessary for the economy. It may also lead to increase in consumption of non-caloric goods like alcohol, tobacco, or wastage of money in gambling, social customs etc. The urban asset creation programme needs to be designed as employment programme with proper registration, skill indentification, matching, providing learning experience, linkaging etc. It is also necessary to reorient the local government administration towards employment planning and promotion of technology.

4.8 Universalisation of Urban Community Development (UDD) and Urban Basic Services (UBS) activities

4.8.1 The pilot project phase of the UCD/UBS programmes has provided sufficient experience for designing and tooling participatory programme which are vital for organising successfully the development activities amongst the urban poor. The utility of the UBS/UCD institutional structures in coordinating the services and enlisting contributions from citizens in terms of money, material, experience and loyalty has been demonstrated.

4.8.2 Firm steps need to be taken to cover the whole of Urban India with UBS/UCD type participatory service patterns. About 600 full units are recommended to cover the whole population of the urban poor. Smaller towns may have only half or one-fourth project units or may be clustered. One full unit for one lakh population of urban poor is estimated to cost Rs. 4 lakhs a year for administration, communication and mobility supports, and higher level supervision and coordination. An annual expenditure of Rs. 24 crores will be needed once the whole of the Urban India is covered to carry the programmes of an enormously larger magnitude and complexity. The core unit must have a division for shelter activities, economic activities, and women and child development in addition to the common field work services. Decentralisation of powers in the technical activities for the benefit of the urban poor (social welfare department, health, primary education, public works, water and drainage, land management, etc.) and financial institutions is also very necessary if the local agencies are to succeed in coordinating the inputs of their technical departments and financial institutions with their own. The Urban Basic Services (UBS) UCD should be visualised as a common arm of all development departments for the covergence of services at neighbourhood and city levels.

4.8.3 Among the tasks to which the UBS/UCD will have to give maximum attention is assistance in community education for building local organisatons for a variety of purposes-housing fair price distribution, economic activities, child nutrition and mother-care, legal and labour contracts and a number of others. It has to disseminate information on a number of subjects relevant to daily living like sources of credit, assistance programmes for basic sanitation, water and other amenities. Neighbourhood level organisations may have to be linked to functional organisations of a higher order at city or regional level before the nursing process can be transferred from the UBS/UCD worker to the system

4.9 Augmentation of Building Funds for EWS Housing, Slum Improvement, Sites and Services Schemes; Security of Land Tenure and Facilitation

4.9.1 The present rate of fund mobilisation for the economically weaker sections (EWS) shelter support will have to be stepped up nearly three and half times to reach a level of about Rs. 700 crores a year at which level it will have to be maintained over a period of 10 years. The present contribution of social housing in meeting the needs of weaker sections is a mere token and was able to contribute only 6.54 per cent of the stock according to an NBO report* to the NCU. To make a real dent on the problem, a plan for upgrading about 5 million EWS units over a 10 year period with the necessary environmental services should be formulated and implemented steadily and continuously.

4.9.2 The problem of shelter augmentation for the urban poor is not just one of augmenting funds. It is complex and difficult. The poor want to remain close to their place of work because they cannot afford transport expenses and the time needed to travel from distant residential sites to their work places. There are hardly enough parcels of land which can be acquired for housing them near their respective places of work and thus are costly. The nearest viable clusters of poor have to be identified for regularisation and replanned so that the shelterless population is also accommodated. Because of complexity of ownership pattern, it is not easy to reach the real deprived households without careful socio-legal work. The initial inputs might have to be of the slum improvement type—paved lanes, drainage, common water supplies, latrines, light poles etc. In situ improvements of shelter units can be planned but the second stage as the legal cobwebs are swept away and institutional regidities give way. Private patta rights may have to be controlled by community which should also be made responsible for the maintenance of common amenities. This would lay the foundation for development of collective life forms which are essential for the success of community development efforts and for controlling the push-out process arising out of invasions by better off classes of improved slums in choice localities.

4.9.3 Modifications in Sites and Services Schemes are needed so that they do not become middle class camouflage to cover appropriation of scare land resources in their favour at subsidised rates in the name of the poor. A housing bank is being set up with a seed capital of Rs. 100 crores. The bank will need suitable orientation and structure to ensure that it will be easy for a low income householder to obtain loan for extension, repair, amenity installation or construction of a low cost functional and appropriate shelter.

4.9.4 Tenurial security is fundamental to any improvement process based on the participation of the occupant. Threat of eviction operates against any effort for durable improvement. Provision of homestead land to those families which do not have such land elsewhere and have been living in the city for more than five years would itself be a fairly radical measure, but it has to be accompanied by provision for basic infrastructure development and selected housing loans preferably to groups. Unless newly allocated sites are developed for use, there is a likelihood of land parcels passing into better off hands.

4.9.5 The National Commission on Urbanisation has already made interim recommendations regarding reorientation of the application or urban land ceiling laws. If these are implemented, it will not only raise housing stock for the poor with the help of 'Shelter Fund' but also generate significant employment activity.

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*Urban Housing Needs, National Buildings Organisation, Nirman Bhawan, New Delhi—August,1987.

4.10. Extension of Public Distribution System

4.10.1 The public distribution system has been geared to supplying limited quantities of certain essential goods like cereals, edible oils, pulses, kerosene etc., at fair prices to card holders. The prices of commodities offered at fair price shops under the control of the public distribution system are generally lower than the market prices.

4.10.2 Except for Andhra Pradesh where public distribution has been extensively used to implement the government commitment to supplying rice at a little over Rs. 2 per kilo alongwith other controlled commodities, the states are maintaining the system only as a token. The public distribution subsidy in Andhra, however, has already reached a figure of Rs. 180 crores. Critics are argueing that this subsidy curtails opportunities for growth-oriented investment which is likely to affect adversely the chances of income and employment growth in future.

4.10.3 It is possible to reduce subsidies considerably by more judicious administration of public distribution and decentralisation of the organisation. It has been estimated that if public distribution card holders were confined to those whose incomes are below the poverty line, it should be possible to meet about 80 per cent of the needs of the poor for rice, which is their staple food, instead of the present 40 per cent. The yellow card holders having an income above Rs. 1500 per month gain only marginally through public distribution goods to them, yet keeping them well below the market level. This group does get the benefit of dearness pay adjustments.

4.10.4 Revalidation of cards every year may be cumbersome but would be economical because the rise of families above the poverty line is reflected in the turnover and vice-versa and ghost membership would be more often detected. There is also scope for economy in movement and storage of goods. According to a recent report the movement and storage losses of STC amounted to about Rs. 400 crores over the period 84-87.

4.10.5 Even if the measures of economy and efficiency succeed well, the case for food subsidy for urban poor (and to some extent rural poor) seems justifiable. The Andhra Pradesh government subsidy per capita was about Rs. 36 annually. However, if a green card holder were to draw his full allowance, he would be gaining about Rs. 95 per month as compared to what he would be required to pay for the same in the open market as in January 1988.

4.10.6 The fair price shops system should be, of course, reorganised so that control passes to consumer cooperatives for local sales. Consumer cooperatives should provide strong representation to women at all levels.

4.11 Extension of family security programme

4.11.1 While employment programmes may cover able-bodied persons, the aged, disabled and women managed households may require social security cover as they are unable to participate and compete in normal work activities of employment programmes. The eligible population has to be identified and educated about the benefits available. Subsidised group insurance of self employed workers and wage earners in non-formal sectors may also provide contingency cover and save them from the clutches of heavy indebtedness into which they fall in the absence of such a social security cover. Consumption credit from bank, which has been accepted in principle but has mostly failed to provide relief from the debt burdens into which vulnerable households are thrown by contingencies of health and other social urgencies, also needs introduction.

4.11.2 Utilisation of debt relief legislation would require education and organisation. The present burdens of private debt servicing are enormous because of high interest rates. A study of Hyderabad Slums showed that 58.7 per cent of the Scheduled Caste families were in debt. The average debt per Scheduled Caste family was Rs. 2181. 21.5 per cent of the debtors borrowed from money lenders at rates varying between 24 per cent and 120 per cent per annum. Marriage and consumption accounted for 30 per cent of the cases of indebtedness. Cooperative savings and lending and chit fund activities might be ways out but social reform and present expenditure control is a must. These can be stimulated if social organisers can motivate and educate prospective members in groups and help organise savings, lending and recovery operations. The banks can also channelise their consumption credit quota through the activities of such recognised groups. For consumer credit, community co-operative marketing outlets which can be recognised by banks for channelising consumer credit resources at their disposal, are suggested.

4.12 Educational Supports for extension of family planning and maternal and child care Services

4.12.1 The NIUA study shows that children upto 14 years of age constitute about 46 per cent of the total membership of families of the Urban Poor, while the proportion for their general sample was thirty nine per cent. The high birth rate is also associated with high infant mortality rates which adds to the strain on the limited physical and monetary resources of the family.

4.12.2 The family planning programme has received increasing allocations plan after plan. It has increased the consciousness of people about the importance of family planning but there is a major implementation gap especially in the areas of poverty concentration in urban communities where health workers and printed words do not reach. It is necessary to intensify family planning efforts so that national norms are reached early in poor areas and poor households start getting relief from unwanted numbers.

4.12.3 Special efforts would include strengthening of the mother and child care component of UBS/UCD for which a universal coverage of areas urban poverty concentration is recommended. The integrated basic health service of the CMDA has shown good results in Calcutta bustees. A similar pattern with necessary modification can be adopted in other cities in conjunction with extension of other basic services like water supply, latrine connection, electricity and other shelter related basic services. Non-formal educational programmes for mother and child care will have to be given extensive coverage.

4.12.4 It is also suggested that all concessional loan deeds should contain a clause to the effect that the family will cooperate in the adoption of family planning practices, non-formal education of children and reduction of alcohol consumption. Incentives in the form of additional concessions, if they cooperative successfully, can be provided to the beneficiaries.

4.12.5 A combination of measures to control infant mortality, promote women education, discourage early marriage, speed information about family planning services and provide incentives is likely to make a substantial impact, which should be regularly monitored. The goal should be to reach the national level norms within five years and better them slightly. About 12000 part-time jobs will be created through this programme.

4.13 Intensification of Non-formal Education for school drop-outs and working women

4.13.1 According to studies of urban poverty reviewed by the CEPT* child workers constitute about 11 per cent of the total workers in the families of urban poor. They contribute about 19 per cent of the income of their respective families. Although the constitution prescribes compulsory education of children upto age 14, the data shows that the schooling rate of children in urban poor families is much lower than the general rate. The drop-out rate exceeds 65 per cent in most of slum studies reviewed. The participation of children in labour cuts down employment for adults and depresses wage rates. From the employment promotion point of view also, child-schooling is an important supporting step. Missing the opportunity to learn basic 3R, and practical skills is likely to turn into a permanent handicap for availing of opportunities for income growth.

4.13.2 The need of poor families for additional income and for facilities for placing infants under care when adult women go out to work is likely to remain pressing for years to come. School timings and curricular requirements have to be flexible and much less formal than at present if urban poor children are to succeed in getting enrolment. Besides, some income supplementation in the form of food supplements means-and-merit scholarship for students, or income from practical gainful activity in schooling premises may induce parents to send their children to school. The non-formal education stream would create part-time job opportunities for educated men and women, who should preferably be drawn from poor families in the same area and then trained. An initial target of enrolling about 2 million children (especially working children) in the non-formal stream is recommended. This would create about 50000 part-time jobs for educated youth.

4.13.3 Studies have also shown that average per day earnings of working women in urban poor households are substantially lower as compared to per day earnings of male adults. This is caused in good part by denial of opportunities to girls to learn skills except in domestic work and family callings, leading to restricted choice of work opportunities when they grow up. A skill development programme is therefore necessary along with development of 3R skills to improve the earning level of working women in poor families.

4.14 Support for innovative programmes of voluntary agencies

4.14.1 A wide variety of roles that the non-government voluntary agencies play in different urban situations and interventions is often not appreciated by the governments and their agencies. Assisting the weaker sections in obtaining services as well as the State in effectively delivering them; providing professional services in research, project formulation and implementation; monitoring effects of developmental actions; highlighting their contradictions; generating alternatives; advocating causes; protecting and upholding values; organising people to actualise their internal, dormant potential and strengths and to assert their rights; strengthening democratic values and institutions; and facilitating participatory processes through education and intermediation are some of the roles that non-government voluntary agencies perform at the community, city, state and the national levels. The watch dog role, the corrective role, the intermediary role, the innovator role and the service provider role are predominant in the list of priorities of voluntary agencies whose number and potential in urban areas is no longer insignificant. Organising slum dwellers; improving their shelter and services as well as living and working environment; development of alternative technology for low cost sanitation and delivery of health services; care of disadvantaged children; income support activities; advocacy action for rights of labour force in the informal sector; and support to poor women's struggle for equal status, opportunities and wages are some of the NGO activities for the urban poor.

4.14.2 In the Seventh Five Year Plan emphasis was laid on the role of voluntary agencies in accelerating the process of social and economic development and arrangements were suggested for their active involvement in various poverty alleviation and other development projects and programmes. To help promote their participation and coordinate work of these agencies a special agency called CAPART (Council for Advancement of People's Action and Rural Technology) has also ben created. However, the Seventh Plan document refers to voluntary agencies only in the rural sector. The existence and role of such bodies in the urban areas is not mentioned and therefore not recognised.

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*Urban Poverty in India : Policies and Programmes : Review of Literature (CEPT-Ahmedabad: 1987).

4.14.3 In consideration of the roles that they already play and the need for their involvement in urban poverty alleviation efforts, both independently and with the government, it is recommended that the government recognise the voluntary agencies in the urban areas and create facilities and support arrangements on the CAPART model for urban projects and works of non-government agencies. This agency should facilitate and finance as CAPART now does for rural NGOs, study, research, advocacy action, demonstration projects and other innovative and relevant efforts or urban NGOs.

4.15 Support for training and action research in urban poverty

4.15.1 As the programme gets underway it would reveal a number of problems which would require competent study and research to find solutions. It would be too facile to assume that busy administrators and policy planners would be able to acquire and apply specialised skills and devote time which such studies and research efforts require. Besides, technical back-up would be needed for perspective planning work, evaluation and feedback and designing and conducting training and orientation programmes. The National Institute of Urban Affairs is already doing pioneering work in this direction. Its efforts should be strengthened. However, the study and research agenda for urban poverty alleviation efforts would turn out to be quite complex and extensive and will need establishment of additional institutional structures in cooperation with like minded agencies who may be prepared to make contributions to support such an initiative.

4.15.2 It is recommended that a National Institute of Studies in Urban Poverty should be set up, the Government of India should take initiative to attract contributions from like minded agencies and should itself contribute liberally. The proposed National Institute will be responsible for training key workers, conduct problem solving type research activities and diffuse findings and learnings from experience. It may also play advocacy and policy advisory roles. In view of the contemplated role of the National Institute, it should be incorporated as a non-government body with intimate relations with government agencies dealing with poverty alleviation programmes and network of training and research institutions.

4.15.3 Since voluntary agencies have shown interest, aptitude and capacity for carrying out action research in various aspects of urban poverty, the institution building efforts of voluntary agencies for developing action research programmes in urban poverty should be encouraged, strengthened and supported by liberal grants-in-aid, sharing technical information and services, appropriate facilitation, networking and participation in various policy making organs and processes.

4.15.4 It is recommended that a provision of rupees five crores should be made to set up the National Institute of Studies in Urban Poverty. A provision of Rs. one crore annually is recommended to support institution-building activities of the non-government voluntary agencies. An additional provision of Rs. 3 crores per year should be made to support service activities of the voluntary agencies in their pilot project areas for demonstrating innovative ideas and approaches.

4.16 Costs

4.16.1 A summary of the cost of the recommended programmes is presented in the following table. The cost estimates have been worked out for five years. Cost estimates for the next five years may be worked out in the light of the experience of programme implementation for the first five years.

SUMMARY OF ADDITIONAL INVESTMENTS, EARMARKING AND PRIORITISATION REQUIRED TO IMPLEMENT THE NEW DEAL FOR URBAN POOR PROGRAMME

The requirements of investment, earmarkings and prioritisation as summarised below. They are tentative and may be revised in the light of actual experiences after the programme is launched

Programme	Additional annual provision needed for Nodal Ministry (in crores of Rupees)	Prioritisation for coordinate financing institutions	Outlay earmark for sister Ministries (annual in crores of rupees)
1	2	3	4
A. **Programme for Enhancement of Income and Employment :**			
1. National programme of employment training for urban poor youth . .	..	..	20.0*
2. National programme of credit support for expanding micro enterprises and technological upgradation	20	500†	100.00**
3. Micro enterprise infrastructure development supports (creating micro business and micro-production infrastructure)			
4. Market development supports (creating Marketing support—interest subsidy and limited risk guarantee may be administed by Nodal Ministry)			
B. **Wage Employment Programme :**			
5. New Programme of public asset creation for promoting Wage Employment amongst Urban Poor (100 million person days @Rs. 40/- per person day)	400	..	..
Extension of Basic Services :			
6. Universalisation of Urban Basic Services/UCD Units @Rs. 4 lakhs per unit. Smaller towns may have half or quarter unit. (Very small towns may be grouped for parapetitic services)	24	..	20***
7. Educational supports for extension of family planning and maternal and child health services			
8. Intensification of Non-formal educational services : @Rs. 200 per household for 1 million households with possibility to raise part of the cost through fees	..	..	20***
Strengthening Existing programmes of UD Ministry :			
9. Slum improvement, Shelter Upgradation, Sites and Services Schemes, Land supply, Tenurial security and facilitation through participatory approaches and NGO involvement	30	700††	..
10. Extension of Public distribution system	..	..	200****
11. Extension of family security programme for vulnerable group e.g. aged, handicapped, widows, unprotected women and working children along with cost of pilot projects to learn the rehabilitation methodology. (about 0.6 million population amongst urban poor @Rs. 1500/- per capita) . . .	..	..	90*****
12. Support of innovative programmes for voluntary groups; training and research activities and nucleus fund for providing unspecified bridge inputs . .	26	..	..
13. Support for training and action research in urban poverty			
TOTAL	500	1200	450
For 5 years (Rs. 10750 crores)	×5	×5	×5
	2500	6000	2250

Notes:

†About Rs. 500 crores may be annually channelised by Commercial banks, urban co-operative banks with refinance from proposed Micro Enterprise Development Bank.

††Banks, HUDCO, HDFC may be asked to prioritise their funds in favour of existing shelter schemes. About Rs. 700 crores annually may be expected to be prioritised.

*Ministry of Human Resource Development to earmark and pass on to the nodal Ministry for implementation through Urban Basic Services and Urban Community Development Departments at local levels.

**Seed capital to be provided by Ministry of Finance for Micro Enterprise Development Bank.

***Ministry of Health and Ministry of Human Resource Development would coordinate MCH and Adult Education Programmes and priorities a provision of Rs. 40 crores to be applied through the Urban Basic Services and Urban Community Development Department at local levels.

****Ministry of Civil Supplies may earmark this amount by rationalising food subsidies elsewhere in co-operation with Ministry of Food and Agriculture.

*****Ministry of Social Welfare may set up a matching scheme with State Governments to provide full coverage to the families belonging to vulnerable sections of population.

4.17 Expected Impact of the Recommended programme Package

4.17.1 The programme has been drawn up with a view to approach closely the national goals of reducing poverty from 28 per cent in 1984-85 to about 10 per cent in 1995. If fully implemented the programme benefits could reach to about 10.1 million urban poor families.

	Name of Programme:	No. of beneficiary families in 5 years (in lakh)	
	Income & Employment Enhancement Programme	Direct employment benefits*	Service benefits**
	Non-wage Employment Programmes		
1.	Employment training for urban poor youth	10.0	
	Credit Support :		
2.	Existing micro enterprise Upgradation	20.0	
3.	Infrastructure Development for Micro Production Units		
4.	Market Development Support		
	Wage Employment Programme :		
5.	Urban Wage employment & Public assets creation (Average @ 100 days of extra work per family) *Expansion of Urban Basic Services*	10.0	
6.	Extending coverage of UBS/UCD	0.1	
7.	Family Planning, Health, Child and Women Development—Extension Support	0.1	10.0
8.	Intensification of Non-formal Educational Services (Improving Utilisation of existing facilities)	0.5	15.0
9	Strengthening existing Habitat Upgradation programmes	..	25.0
10.	Extension of Public Distribution System	..	75.0
11.	Extension of family security programme for vulnerable sections	3.0	..
12.	Support for innovative programmes of voluntary groups	0.2	0.9
13.	Support for training and action research	..	0.1
		44.0	126.0

Notes:

*These beneficiaries (estimated to be 4.4 million) are likely to experience substantial income/employment gains. An income/employment gain is substantial when it exceeds 15 per cent of the current level of income and Employment of the participant.

**The beneficiaries receiving service benefits might enjoy multiple benefits as a result of convergence of various service benefits at family level. Assuming that a family may enjoy two service benefits on average, the number of families receiving multiple benefits might by 6.3 millions.

4.17.2 The programme will thus have substantial impact on 4.4 million families in terms of income and employment generation. At the same time it would mean very substantial improvement in access to and utilisation of health, education and public distribution services involving about 12.6 million families in terms of individual service items. Since the service benefits of various programmes are likely to converge at family level, the multiple benefits would be received by a smaller number of families, say 3 millions. Considering the existing number of below poverty line households in urban areas about (II million) and subsequent growth rate (about 2 per cent annually) the programme should enable the country to reduce the poverty from 28 per cent in 1984-85 to the projected level of 10 per cent at the end of five years of effective implementation of programme. The goal is comparable to rural poverty alleviation targets over 5 years (about 15 million households under IRDP and about 19 million households under NREP/RLEGP with an average wage employment rate of 100 days per participating household). The outlay proposed here is, however, likely to be more cost effective for the simple reasons that while access to social services and their utilisation is sought to be improved for a majority of urban poor families under the proposal programme, there is hardly anything of comparable significance under rural IRDP.

4.18. Spatial Distribution

4.18.1 Two kinds of questions need to be considered. (1) Will the backward areas benefit leading to reduction of regional inequalities (2) Will migration rate to metropolitan urban agglomerates be con-

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trolled to allow the former a breathing spell? Since the public distribution is being included as an essential programme component along with access to family planning and non-formal educational services, the programme would have analogous effects to Minimum Needs Programme in terms of reduction of regional inequalities. The tendency in favour of better regional balances would be strengthened by the proposed universalisation of UCD-cum-UBS programmes covering small and medium towns also. This should therefore, favour more even regional spread of urban development inputs. If it is necessary to give a further slant towards decentration moves, distribution of goods through PDS can be arranged at slightly cheaper prices in small and medium towns so that it adds to the attractiveness of living in those communities. The Chinese have adopted similar policies for the commune government with wholesome results.

4.18.2 The other important instrument is urban wage employment and urban asset creation programme. By its very nature the labour intensity criteria would suit works being taken up in small and medium towns to develop infrastructure e.g. roads, market and housing sites, building material production, open drainage, deepening of water tanks, etc. Two effects may follow. The infrastructure development may dispose a local entrepreneur to set up an enterprise if locational advantages are titled as a result of this infrastructure development otherwise heavily loaded in favour of large cities. The wage differentials may get reduced and stable days of employment increased making the metropolitan-ward movement less attractive. The micro-infrastructure development projcets also would favour small and medium towns in terms of low cost and easier land acquisition, reduced erection costs, etc. Although earnings might be less as compared to metropolitan outlets of similar size they would still be viable enough to retain the interest of young men to make a choice for them.

4.18.3 Employment training and credit support proposal will not totally bye-pass small and medium size communities but the larger metropolitan communities may have an advantage in terms of better access to information, banking services and availability of many complementing inputs and training facilities. Some proportion of reservation is necessary in training institutions and self employment loans in favour of participants from small and medium towns.

4.18.4 Coordination of urban wage employment with NREP/RLEGP inputs can give a real chance for the development of growth centre strategy which can promote a supportive rather than parasitical process of urbanisation in relation to urban areas. Coordination of building material production activities for low cost housing through urban wage employment programmes could make upgradation programmes more affordable if the procurement and distribution is channelised through cooperatives/slum clearance boards etc.

4.18.5 The programme thus represents a beginning of the reversal of the lopsided process of urban development which has resulted in concentration of development inputs in very large cities and state capitals. If decentralised forms of government and development planning are adopted this would add strength to forces of more balanced urbanisation.

4.19 Interfaces between proposed package of activities and rest of the Economy

4.19.1 It is difficult to visualise clearly the impact of the programme on the large and varied interfaces with non-poor sections of population. Obviously additional money will have to be found by taxation and borrowings, a major part of which is likely to come the better off sections. A good part of demand for commodities and services produced by urban poor through infrastructure, marketing and credit support programme has to come from non-poor. The inputs needed by the enterprises of poor to produce and market commodities and services depends on a good part on deliveries from non-poor sector. Selective expansion of non-poor section is thus an important condition to provide the needed input deliveries and have output from the production activities of low income sector accepted.

4.19.2 The expansion of auxiliary tertiary sector positions is likely to be achieved by more intensive utilisation of existing supervisory personnel and only marginally by the appointment of new ones. There is considerable surplus in the form of educated unemployed youth. Addition to the training capacities at higher level might therefore require only marginal adjustments.

4.19.3 A major part will have to be played by expansion of government spending correlated with urban works programmes to make the assets usable and maintain them after they are constructed. This will be material, power and transport component which is not covered by the normal labour-material ratio of urban works. Most of this can be done by dovetailing sectoral planning with urban works and advance planning of local finance system including fiscal measures required to maintain the newly created assets for public use. Since we are emphasising development of economic infrastructure to be given priority (marketing areas for example) under urban wage employment programme, there would be creation of significant potential of fiscal resources to be trapped by local authorities not only to maintain the assets but also find some resources for further development.

4.19.4 The absorption of skilled manpower turned out under the Employment Training Programme recommended above presupposes either expansion of related activities or removal of shortages in certain categories. The tendency might be to seek stable jobs, even if less paid, rather than starting a new self-employment enterprise. The small industries might benefit because of availability of trained manpower at affordable rates. The manpower turned out by formal degree-producing sector might experience competition and may lead to lowering of its reservation price. The reduction in supply cost of outputs of tertiary non-formal enterprises which succeed in getting ancillarised being towed by the mother enterprise, might indirectly contribute to the profits or viability of larger firms. If juxtaposed in competition (powerloom versus multiple function textile mills) the solution could be either market segmentation or readjustment of costs in less efficient sector. Raw material inputs in informal sector, in a number of cases are processed from waste and throwaway articles. This recycling thus adds to the real values which otherwise might be lost. The social cost of such recycling are sometimes heavy (child labour in waste collection for example). These will have to be reduced by appropriate human resource conservation measures. Since a large number of tiny informal enterprises are in 'food and beverages' sector, the input expansion from agriculture side should not present problem in view of current programmes of expansion (except for oil/fat and fuel energy requirements). In fact, some of the idle production capacities of non-formal sector, especially in light capital goods area—like repair machines, parts of bicycles and autos, metal frames and sheets, raw material of packing products etc. These multiplier co-efficients are not known at present. However, the indirect income and employment expansion coefficient of the investment in credit support and skill training programme is going to produce larger effects on the economy than are produced by direct effects. Nearly the whole of it might come from the activisation of country's own resources thus plugging the possibility of leakages outside the national economy.

4.19.5 The programme, if imaginatively implemented would serve as a good tonic for the expansion and intensive use of existing production capacities, especially light capital goods industry, which can then lead to better utilisation of built in capacities in heavy capital goods industry in public sector which has drawn very heavy investments but is running in red partly because of under-developed infrastructure base of light capital goods industry.

4.20 Need for Multi-sectoral Approach

4.20.1 The various items of package are interrelated. The training programme for its success may require access to credit and infrastructure and marketing support for the trainees who want to establish or expand their own enterprises. The urban wage employment and public asset creation programme is likely to be linked up with the creation of productive infrastructure for micro-enterprises as also production of low cost housing materials through which it gets linked up with habitat upgradation programmes. The participatory programmes of UCD and utilisation of health and education services are linked up. It is thus a network of inter-relationships which can provide benefits of complementarities if the programme is operated as an interrelated multi-sectoral package. While individual departments have already got most of the programme elements as part of their schemes, what is lacking is the interrelated working in the light of common goals.

4.21 Improving Capacity of Local Organs

4.21.1 The various elements of programmes could converge through appropriate mechanisms of coordination e.g. committee work, strengthening of local bodies by adding new structures and orienting existing service structures to the new goals. The local body's function must be expanded to include:

(a) New vocational and adult education programmes along with its responsibilty for primary education for developing productivity. Pre-primary set of ICDS may be included

(b) Transfer of public distribution of food, ICDS, MDM etc. as nutrition components to carve out a composite Health and Nutrition service

(c) Administration of social security for vulnerable sections of the population

(d) Setting up micro-business infrastructure development and facilitation cell which should also look after rationalising regulatory requirements to facilitate micro-business activities

(e) Setting up a credit support service for urban poor for identifying eligible beneficiaries, administering risk guarantee and subsidy fund if any; monitoring, conselling, and linking with funding and marketing support agencies

(f) Inventorying major service gaps in health, education and shelter infrastructure and playing advocacy role with the concerned departments to bridge up the gaps; Using basic services provision to get suitable linkage and bridge inputs

(g) Operating urban community development and urban basic services programmes

(h) Administrating urban asset creation programmes for promoting wage employment amongst urban poor; identifying and planning projects which could contribute to the meeting of basic needs of the population with relatively labour intensive techniques, listing households which are eligible for participation in Urban Wage Employment and Public Asset Creation programme, linking and balancing supplies and demand for wage employment amongst urban poor

(i) Social education and social organisational programmes to make use of technical and institutional information

(j) Setting up a cell for cadastering common land property and taking responsibility for its planning and development; with due regard to priorities for urban poor, facilitating land releases so that other programmes for urban poor are not handicapped on account of bottlenecks in land availability

(k) Providing services to channelise the scarce material inputs to stimulate production activities for urban poor. Also providing link services for output-market support

4.21.2 This role will require creating a very strong institutional presence and attention at top executive level. Since urban poverty alleviation is a fairly long term programme, grounding it on a sound institutional base is *sine quo non* for its cumulative success.

4.22 **Priorities**

4.22.1 The time-phasing and priorities of different programme items would depend on the local situation which should be carefully studied with reference to incidence of poverty, development of services, preparedness of voluntary bodies and leadership, and more important, opportunities for business expansion in which urban poor can participate and claim a fair share. While several items of programme would cry for funds and allocation—especially programmes related to expansion of physical amenities, *it is necessary to give priority to employment and income generation objectives in allocating outlay and fixing goals.* While habitat related programmes had been on ground for a long time, the income generation programmes for urban poor are very new on the scene. Unless key priority is attached to them, the tendency might be to absorb the limited provisions for programmes of physical construction which have dominated the urban development scene.

4.23 **Sub-Plan Structuring**

4.23.1 While community development has been recommended to approach people with a view to elicit their maximum participation in the alleviation of poverty, the problem of raising the outlays and ensuring their non-divertibility will have to be solved. UCD action being mostly local in character, it is not expected to influence these vital decisions. As already argued the multi-sectoral linkage constitutes an important characteristic of programme implementation. It might be desirable to constitute a sub-plan of the package so that various sectoral elements are brought together under one sub-plan umbrella for their correlation with each other and with broader objectives and to prevent diversions under powerful pressures from vested interests. The Centre could indicate its overall contribution while the essential task of identifying, earmarking and coordinating relevant sectoral inputs is attempted under State Plan in the process of sub-plan development. Institutional infrastructure at local level, including the one needed to unite peoples' experiences and resources with government resources and technical guidance in pursuance of common objective, will require central assistance for some-time to come till the State and local bodies generate enough resources of their own to maintain the on-going programme.

4.24 **Role of the Nodal Ministry at the Central level.**

4.24.1 The nodal ministry will be made responsible for urban poverty alleviation programme and will be mainly responsible for administering the National Programme of Wage Employment for Urban Poor, setting up and coordinating the National Agency for Urban Basic Services and Citizen participation and the interest subsidy schemes for shelter upgradation programmes and micro-enterprises development. As a nodal ministry it must monitor and coordinate (through inter-departmental committee of Secretaries, preferably) the entire urban poverty alleviation effort. Its partners will be the Ministry of Labour, Ministry of Industry and Commerce, Ministry of Health, Ministry of Education, Ministry of Civil Supplies and Ministry of Social Welfare. The coordinate financial institutions need to direct their loan operations toward the needs of the urban poor. The size of the nodal ministry's outlay comes to Rs. 500×5= Rs. 2500 crores. The other ministries have to provide by reorienting their schemes an amount equal to 450×5= Rs. 2250 crores from their own allocations. The financial institutions will mainly provide the loan finance which over a five year period comes to Rs. 1200×5=6000 crores. It is not the past practice to include loan amounts advanced by financial institutions as part of plan outlay. The departmental outlays adds upto Rs. 4750 crores for five years. Assuming that the annual plan outlays will average not less than Rs. 47500 crores during the Eighth Plan, the readjustment would come to about 2 per cent of the total outlay which is very marginal and yet can constitute a good step in the direction of urban poverty alleviation.

CHAPTER V

INSTITUTIONAL CHANGES

5.1 **Legislative and Institutional Supporters**

5.1.1 In sufficient attention has been given to the legislative and institutional factor which have retarded the pace of development and affected the poor negatively. Minimum wages for unorganised workers have not been revised for years; even though inflation has been eating away the real incomes of the poor. Except in pilot project areas the task of promoting local leadership and non-government institutions and devolving responsibilities on them has lagged. The new programmes therefore, should not merely be token ones, but should be conceived on a universal scale with a definite resolve to reduce poverty to 10 per cent of the total population by 1995.

5.1.2 Several measures are necessary to create a proper legislative and institutional environment to help the low income households in their efforts to generate more income and employment for their families and have a better share in civic services. It is recommended that the Parliament may enact model legislation (on the analogy of Urban Land Ceiling Law) and pursuade the State Governments to follow-up on it. The act may define 'urban poor' and the nature of civic, economic and welfare services to be provided to the urban poor. The Act may prescribe that building by-laws should provide for site and services schemes and low income housing, property taxes can be levied on the low income housing but the rate should be kept low enough to be affordable for low income householders.

5.1.3 The Act may also provide that there be a separate account for the improvement of slums/bustees/chawls/or other under developed areas, by whatever name called, where incomes are low and civic amenities are highly deficient in comparison to the average level of the city. The local body should be obliged to contribute not less than 10 per cent from its general fund, the State Government should contribute not less than twice the amount contributed by the local body. The amount from consolidated general rates realised from under developed areas should also be credited to the fund. The fund should be applied for providing services like roads, water-supply, drainage, solid waste disposal, health, education, community centres, common production centres, welfare services to the under-developed areas, etc. The State Welfare Department may also implement its services for old age pensions, disability relief etc. through the local body.

5.1.4 Each local body must have a cell for various economic welfare and neighbourhood development services. The larger Municipal bodies will have a department on the line of urban community development. The department should be made responsible for the facilitation, coordination and community support for various basic services—low cost sanitation, water supply, drainage, shelter improvement, pavements of paths, integrated child development and mother care services, skill upgrading, formation and development of neighbourhood organisations, development of voluntary organisation and assessment and delivery of welfare benefits. They must function under a senior person such as an Additional Commissioner so that he is able to coordinate the service of various departments.

5.1.5 There would be need for earmarking spaces in residential areas with services like water and light where hawkers can carry on their activities at specified hours for a fee which can be used to keep the area clean. Holiday markets and night markets can be institutionalised in certain areas of the city.

5.1.6 The labour legislation will have to be extended to provide for coverage for contract work assigned to household production units. Inspection machinery will have to be strengthened to ensure that the norms of payment and welfare responsibilities are observed by the contractors and work allottees alike. Child labour laws and equality of payment to male and female workers for the same kind of work require better enforcement.

5.1.7 Recognition and consolidation of tenure rights is a very important matter for the legislative and institutional agenda. It may be preferable if the various departments like labour, social welfare, commerce and industry, lead bank etc. lend their representatives to the proposed urban basic services department and provide technical guidance, under the administrative control of the head of the local body, for increased effectiveness of both.

5.1.8 Legislative changes providing legitimation for changes in bye-laws for town planning and other municipal functions would be necessary to create a climate of facilitation for non-formal sector activities which at present have to be carried on under a cover of graft and political patronage to keep off the coercive arm of government. Micro-market planning, licensing vendors for selling in part-time markets, granting titles for un-objectionable lands, simplifying approval process for minor additions, alterations and constructions, education and involvement of community leadership in the basic provisions of municipal laws and administrative processes are some of the steps which should constitute a fairly challenging agenda for institutional development of urban local bodies for the next five years. *The regulative, amenity-oriented and revenue approach of the local bodies has to be transformed into human* *centered, facilitative and cooperative one so as to ensure the fulfilment of directive principles of State Policy* which lay down that the State shall, within limits of economic capacity and development, make effective provisions for securing the right to work, to education and to public assistance in the case of unemployment, old age, sickness and disablement and in other cases of under served want (Art 41). The local self-Government functions, and processes, its structure of administrative responsibility, technical back-up and financial allocation would all require redefinition by suitable legislative changes and institutional reorganisation, so as to make them effective instruments of the new thrust of State Policy.

5.2 Comprehensive coverage and upgradation of Minimum Wage Laws: Securing widespread acceptance of norms

5.2.1 *The most important institutional response required to alleviate urban poverty is to make minimum wage laws more comprehensive and update the ones that are on the statute books.* The minimum wage laws should cover units employing three or more workers, whether offering time wages or piece work wages and lay down minimum norms of payment for definable units of service activities in the unorganised sector. This should be presented with the help of the associations of workers. These steps prevent mutually destructive competition pushing down the wages to un-healthy depths where even survival is jeopardised. Needless to say *minimum wages not be less than* $3\frac{1}{2}$ *units of the minimum cost of living index.* A continuous Wage Board and supervision machinery for un-organised trades and callings is necessary in each State to monitor the implementation of minimum wagenorms, changes in cost of living index and declare minimum wage rates at the end of every six months.

5.3 Need for Central initiative

5.3.1 *Central initiative is necessary to create a proper legislative and institutional environment to support the urban poor.* The influence zone of national and regional cities cuts across the state boundaries. Given constitutional rights of free movement, right to own property, carry on trade and commercial activity, and profess ideas and faith, the State cannot follow closed island policy to control the flow of migrants, capital, trade or ideas. Eventhough the States have a subject matter jurisdiction for the constitution and control of local bodies, and rights of taxing sale and entry of goods, un-coordinated policies can eventually lead to a zero-sum game for all. A comprehensive forward looking framework is necessary to coordinate efforts and give correct orientation to the policies of the state and the local bodies.

5.3.2 A central legislation, even if constitutionally permissible might make the frame too rigid. A parliamentary resolution on policies regarding urban poverty and strengthening of local bodies may set the tone, it needs to be followed up by innerparty discussion and initiatives in the respective states and discussion and consensus in regional councils, national development council, mayor's annual conferences, etc. to bring about inter-party consensus. Central incentives in the form of sharing expenditure or other forms can be attached to the schemes to strengthen institutional machinery. With a view to give clear signals to the states and local bodies to raise their stakes for the cause of upliftment of urban poor, the Centre may suggest creation of a separate account for designated purposes to which it may contribute provided the states and the local bodies also contribute jointly or individually in a specified proportion.

5.4 Organisation of Urban Poor

5.4.1 While the organised labour through collective action has been able to win many concessions from the employers to improve wage levels, hours of work, compensation for work injuries, protection against arbitrary action and social security, the unorganised labour, especially women and children, in the informal sector of the economy, has remained unprotected and suffers from job uncertainties, low wage payments, nearly total lack of social security provisions, prolonged hours of work and unhealthy conditions of work environment despite legislations enacted to regulate some of the gross abuses. *It is necessary to organise this labour to ensure that legislative entitlements created in their favour are fully utilised.*

The trade unions should be encouraged to play an appropriate role here. *However, the organisation of urban poor in various cooperatives and groups should be taken up as a high priority task by urban community development service.* This would enable the small producer to reap the benefits of economies of scale and access to government contracts. It will also provide the small producers an opportunity to gain experience of managing enterprises of increasing complexity. It would strengthen the bargaining power of unorganised labour vis-a-vis their employers and prevent abuse of economic power.

5.5 Conclusions

5.5.1 It would be a mistake to take a sectoral view of urban poverty and assume that the above mentioned investment can by itself solve urban poverty problems. The forces of historical inequalities, the relations between modernised and traditional sectors, the structure of social inequalities and political participation, technical structure and social control of productive enterprises and orientation, and structure and distribution of social services will have to be reconstructed thoroughly in the mean-time to bring into the mainstream of economic and cultural contribution a bulk of those who are poor and marginal today.

5.5.2 The formidable programme and institutional agenda in the foregoing pages should not become an alibi for doing nothing till everything is done. While the existing programmes can be strengthened by raising their allocation, developing infrastructure for implementation, coordination and monitoring the new programme of urban asset creation for promoting wage employment amongst urban poor can surely be mounted without any danger of fueling inflation. The national capacity to produce enough food for its citizens was no longer in doubt even during the worst years of drought in eighties. The coming year, however, promises a full granery. *We can convert the year of promise into a year of hope for toiling masses in urban areas.* In fact, continued growth in food production cannot be sustained without creating additional demand from consumers. The new programme can be mounted with full vigour in the very first year of Eighth Plan, if preparatory work starts now, especially the work to prepare a shelf of viable projects. It would be a tragic chapter of history if it is written that millions were going hungry while the nation's granery was full to the brim. Let not the present generation choose to be condemned by the adverse judgement of history.

REPORT OF THE WORKING GROUP
ON
HOUSING STRATEGY

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CHAPTER I

INTRODUCTION

1.1 Immediately after Independence, the housing needs of the population attracted the attention of the newly formed Government. The National Planning Committee under the Chairmanship of late Prime Minister Pandit Jawaharlal Nehru specifically expressed its concern and also the need to take remedial measures for arresting the deterioration prevailing in housing conditions at that point of time which was having very adverse effects on the health and well-being of the citizens of the country. The need to relieve congestion, over-crowding and to provide a decent shelter with minimum basic facilities was reiterated. The Committee recognised the need of according priority to the housing sector which was reflected in the allocation made for this sector in the First Five Year Plan in which 34 percent of the total investment of the economy was allocated to this sector.

1.2 A shift in the priorities always has physical manifestations. In the case of the housing sector, this has emerged in the form of shelterless, pavement dwellers, slum dwellers and squatters in urban centres, all over the country. In today's context, the extent of slums can be measured by the percentage of the urban population living in such areas. Of the total urban population, nearly a fifth is estimated to constitute the slum population. The Sixth Plan had estimated that in 1985, the magnitude of such population needing the attention would be about 33.1 million. By the end of the Seventh Plan (1990), the slum population has been estimated to increase to about 51.5 million. About 74% of them would be in towns with a population of a lakh and more. Metropolitan cities alone would account for about 38.8 percent of the aforesaid slum population.

1.3. The policy statements in successive Plan documents have continued to emphasize the importance of the housing sector but in reality this sector suffered from a set back and investments in housing as a percentage of total investments in the country declined from 34 percent in the First Plan to 19 percent in the Second, 15 percent in the Third, 12 percent in the Fourth, 10 percent in the Fifth and 7.5 percent in the Sixth Plan. In the Seventh Plan, this has, however, shown some increase to 9 percent but still is lower than the levels of the first five Plans (Table I).

Table I

Investment in Housing in India (Private and Public Sector)

Plan period	Total investment in the economy			Investment in housing			Investment in Housing as %age of total investment in the economy
	Public	Private (Rs. in crores)	Total	Public	Private (Rs. in crores)	Total	
First Plan . . .	1560	1800	3360	250	900	1150	34
Second Plan . .	3650	3100	6750	300	1000	1300	19
Third Plan . . .	6100	4300	10400	425	1125	1550	15
Fourth Plan . . .	13655	8980	22636	625	2175	2800	12
Fifth Plan . . .	31400	16161	47561	1044	3636	4680	10
Sixth Plan . . .	97500	74710	172210	1491	11500	12991	7.5
Seventh Plan . . .	168148	180000	349148	2458	29000	31458	9

The Third Plan document specifically discouraged the construction of luxury and high income housing. Unfortunately, this did not occur in practice and there was a spurt in luxury housing all over the country which caused severe imbalances in the housing situation to the detriment of majority of the population.

1.4 It is, therefore, heartening to find that a National Housing Policy is in an advanced stage of finalisation by the Government of India in consultation with the State Governments, housing agencies, development authorities, MPs, State legislatures, experts, non-governmental organisations and users. The statement of the Prime Minister in his Budget speech this year is also encouraging. He has observed that:

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*Does not include investment in informal housing.

Source: India's Five Year Plans, Government of India.

> "Housing is high on our list of priorities. It is a basic need. It also generates employment. We propose to launch a comprehensive programme for housing development, particularly housing for economically weaker sections."

1.5 It is, therefore, essential that suitable strategies and action plans are devised at the National, State, Regional and Local levels, so that the policy is translated and implemented for the benefit of the people.

1.6 In the First Plan document itself, the planners observed that

> "The subject of housing is not specifically mentioned in the seventh schedule of the Constitution of India which deals with matters coming within the purview of the Union and State Legislatures. In so far as housing for industrial labour is concerned, item 24 of list III may be said to cover it because it deals comprehensively with welfare of labour. This would bring the matter in the Concurrent List with which both the Union and the State Governments are concerned. The residuary power in relation to subjects not mentioned in the Concurrent List or the State List, however, vests in the Union Legislature. As such the Centre may be said to be directly concerned with the subject of housing in general ...... In view of the gravity and vastness of the problem and the financial condition of the States, the Central Government have to accept a large measure of responsibility for financing housing programmes in the industrial centres where congestion and shortage have become very acute in recent years..."

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CHAPTER 2

PRESENT STATE

2.1 The present housing situation in the country is very disquieting—especially, the state of urban housing. The stark realities of the urban housing scene is that more than two lakhs of urban households are without any shelter whatsoever, and among those who have some kind of shelter, as many as 45 per cent are living in just single-room houses *sharing the so-called basic facilities.* Among the overcrowded units each is occupied by an average of 4.57 persons.

2.1.1 Adding to their agony is the absence or inadequacy of the basic services. It is found that in 1981, nearly 37 per cent of the households did not have piped water facilities, about 47 per cent were without electricity and about 66 per cent were without adequate toilet facilities.

2.2 Housing Assets

The urban housing stock which was 14.1 million in 1961 had increased to 18.5 milion in 1971 and to 28 million in 1981. The increase was about 4.4 million units during 1961—71 and about 9.5 million during 1971—81. The stock in 1961 consisted of 46 per cent pucca units, 35 per cent semi-pucca units and 19 per cent kutcha units. By 1981, the respective percentages came to be 64.6, 24.3 and 11.1. Although in the past two decades there has been a shift in the structural quality of urban housing from kutcha and semi-pucca towards pucca housing units, the housing stock has not kept pace with the requirements. This has resulted in a critical housing shortage, which is likely to increase, unless remedial measures are taken, to improve the alarming deterioration in the living conditions of the people.

2.3 The liveability of a house depends on its physical condition. The estimated age composition of the 1981 housing stock indicates that about 21 per cent of the stock is more than 40 years old and about 10 per cent of the stock even more than 60 years old. Most of the units are dilapidated and warrant replacement.

2.4 Detailed exercises done by the National Buildings Organisation estimate that about 6.5 per cent of the total housing stock of 1981 in the country has been contributed by public sector agencies including Union and State Governments and to a limited extent by the private sector. In addition, the Union and State Governments, through various social housing schemes, contributed around 2.4 per cent of the stock. Overall contribution under the rental housing scheme and social housing scheme had been of the order of about 2.5 million units in the stock of 1981.

2.5 Housing situation in Metropolitan Cities

The metropolitan cities in India hold a significant position in the country's urban scene. In the beginning of the current century, in 1901, there was only one metropolitan city, i.e., Calcutta. By 1981, we had 12 and they accounted for over 42 million people or say, about 26.4 per cent of India's urban population.

2.6 The 1981 census data show that the 12 metropolitan cities had about 79.97 lakhs households whereas the number of occupied houses was only 77.44 lakhs. Thus, more than 2.53 lakh households were without separate housing units. The data also inform that about 75000 households were without a roof over their heads and languishing on the city streets (Table below)

Table IV

Population and other Details of Metropolises, 1981

S. No.	Metro U.As.	Population	No. of Household	No. of occupied houses	Households without a separate house	Houseless Household
1	2	3	4	5	6	7
1.	Calcutta	9194018	1736839	1721143	25696	18060
2.	Bombay	8243405	1624535	1590575	33960	25095
3.	Delhi	5729283	1133171	1017754	115417	15149
4.	Madras	4289347	834288	822216	12072	2035
5.	Bangalore	2921751	522359	515599	6770	5700
6.	Ahmedabad	2548057	471677	469188	2489	1355
7.	Hyderabad	2545836	433640	412802	20838	2535
8.	Pune	1686109	322998	311028	11970	1720
9.	Kanpur	1639064	305882	300690	5192	155
10.	Nagpur	1302066	234616	226444	8172	1435
11.	Jaipur	1015160	184425	183740	685	685
12.	Lucknow	1007604	183010	712133	9877	785
	TOTAL	42121700	7997450	7744332	253118	74709

Source: Registrar General of India.

Among the houseless households, Bombay ranks at number one, with over 25000 such households, followed by Calcutta with over 18060 and Delhi with more than 15000 households.

2.7 The number of households living in single-room units varied from 37.3 per cent in Hyderabad to 67.3 per cent in Bombay. Congestion or over-crowding appeared to be worse in the metropolitan cities compared to other urban areas. About 9.5 per cent of the metropolitan households (i.e. 6.7 lakhs) were living in kutcha houses. Semi-pucca units housed about 16.8 per cent of the metropolitan households.

2.8 The data on tenure status of the households revealed that there has been a substantial increase in the ownership houses. Yet, the rental housing units had gone up from 23.72 per cent of the stock in 1971 to 41.47 per cent in 1981. Notwithstanding the substantial increase in the construction of dwellings in metropolitan cities, about 57 per cent of the households lived as tenants.

2.9 As regards the availability of basic services, the metropolitan cities had a slight edge over the combined urban areas. About 60 per cent of the households had drinking water facilities within the premises. 71 per cent had electricity and about 72.5 per cent toilet facilities.

2.10 The kutcha houses are located mostly in the slum/squatter areas and an estimated 18.75 per cent of the urban population was living in slums. About 43.3 per cent of the total slum population of the country was concentrated in metropolitan cities. The slum population as a percentage of the metropolitan population is about 31 per cent.

2.11 Projected urban housing needs

According to the estimates made by the National Buildings Organisation, the urban housing deficit in 1981 has been of the order of 5.9 million units.

Urban Housing Needs as on 1st March, 1981

Components	Number (million)
1. Shelterless households	0.2
2. Overcrowding and Congestion	
(i) Excess of households over available housing units	1.1
(ii) Number of married couples requiring separate room/house	0.3
3. Replacement of kutcha units	3.1
4. Obsolescence/replacement of old housing units (over 80 years old)	1.2
TOTAL	5.9

2.12 By the turn of the century, urban India will have about 49.7 million households whereas the number of the livable housing units will be around 42.2 million, throwing up the shortage of more than 7.5 million units. *In 2001, one out of every 5 urban households will be without adequate shelter.*

2.13 The challenges ahead

Given this state of affairs, the prime but formidable task is to create substantial new stock, strengthen and expand the existing stock and improve the disadvantaged settlements. Efforts are also needed to create a situation in which new slums, squatters and unauthorised settlements do not emerge.

2.14 Commendations

(i) *Synchronise* investments in urban services and shelter, agriculture and industry, commercial and other economic activities and make shelter and human settlements policy an integral part of the economic planning process.

(ii) *Provide* greater coordination between fiscal and investments planning, spatial and shelter policies at the regional and sub-regional levels; in effect industrial location policy should be made to subserve planning for urban development and shelter at regional and sub-regional levels.

(iii) *Create* conditions under which affordable shelter can be secured by people belonging to different income groups within a definite time span and orient public policies and institutions to cater to the specific needs and economic capacities of the beneficiaries.

(iv) *Arrange for* the basic urban infrastructural facilities for urban areas of different sizes within a definite time span and *integrate* the area development and housing plans for this purpose.

(v) *Realising* the fact that solution to housing problems in different parts of the country would require an individual and community approach suited to the local needs it is essential that State Governments/UTs *initiate* a process of consultation for drawing up strategies and action plan at the State, Districts and Taluka (Tehsil) levels.

CHAPTER 3

POLICY

3.1 Strategies will have to take into consideration the statement in the draft National Housing Policy that housing should be accorded a high priority in terms of policy attention at all levels of Government and in the allocation of resources. It has also been emphasized in the draft National Housing Policy that in contrast to the previous practice, Government and Public agencies should act mainly as a *facilitator* rather than primarily as a *builder* of houses. To achieve this, the Government should promote and encourage community participation and assist efforts of the various voluntary groups as also the cooperatives in housing, by way of access to technical assistance, credit, removal of legal impediments and developed land at concessional and affordable prices.

Commendation

3.2 Keeping in view the fact that a majority of urban poor are actually migrant rural families and individuals, who come to cities seeking jobs without adequate skills for living in an urban environment, it is recommended that a Central Sector Scheme on the lines of Indira Awas Yojana or accelerated rural water supply programme is introduced which would subsidise a part of the shelter facilities, especially of the homeless families.

To provide initial stability to the migrants, a first stage shelter should be provided in the form of night shelters. This institution was rendering a useful service in Delhi but for some it has gone out of gear. The revival of such a system is the need of the day. Furthermore, creation of shelter zones should be encouraged in all major cities (National, Metro & Sub-Metros) to provide shelter to the new comers on medium to long term basis.

Shelter programmes could be integrated with other economic development schemes relating to skills upgradation and income/employment generating activities.

3.3 The Group suggests to the Commission to consider the desirability of an omnibus legislation for housing. In this regard, the Government may wish to commission a study.

3.4 The Conference of Housing Ministers held in May, 1987, at Srinagar, also resolved for adoption of uniform and multi-facetted approach to the human settlement sector. The Group completely endorses Resolution No. VII of the aforesaid conference (annexure II).

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CHAPTER 4

LAND

4.1 Land use, shelter and transport should be considered as three legs of a tripod for integrated urban planning of the cities in a regional context. Although the intention of large scale land acquisition and development of land by public agencies was to curb the undersirable speculation and ensure planned development with special reference to the needs of the lower income groups, unfortunately, the freezing of large tracts of land and its slow development by public agencies had the opposite effect on the cities and particularly, the poor. The Urban Land Ceiling Act 1976 was designed to achieve a more equitable distribution of urban land to subserve the common good and to make land available for public purposes. This has, unfortunately, not happened and a very small proportion of the possible surplus urban land has been taken over. It is necessary to undertake a careful review of land legislatives from the point of view of their being instruments of rent control, land ceiling, land acquisition for town planning. It is also necessary to adopt Spartan planning standards, workable building codes and mixed land uses. Furthermore, the innovative approaches adopted in various parts of the country should be widely replicated in the interest of a sustained programme of affordable low income shelter.

4.2 The urban poor have not only been outpriced but also denied access to land. The low and middle income groups are pushed to the periphery or huddled up in inner-city core areas under high-density conditions. In the play of market forces, even where there has been a major public intervention, there has also been a cornering of land by the affluent and influential sections of the population to the detriment and deprivation of the majority who, as a result, has become further handicapped and burdened with higher costs in terms of poor job opportunities, lack of basic services and inadequate transport.

Commendation

To rectify this, there should be a positive strategy in favour of the poor and the under-privileged, by way of specific arrangements to meet their requirements.

4.3 While land planning and planned settlements are desirable, perspective plans, both short and long-term, should be evolved. Perspective plans may include components of master plans or basic development plans which should be realistic and take into consideration the overall needs of different categories of population and be specially sensitive to the needs of the urban poor. Master plans, zoning regulations and sub-division norms should ensure the social objectives of ensuring equitable, spatial distribution of land. Modest community facilities, whether it be in terms of pedestrian walkways, cycle-tracks, mass transportation systems recreational areas, work centres, community halls and the like must be especially catered for as also providing additional space to individual family units in low income settlements. Conscious and determined curtailment of lavish zoning, community and public facilities in upper class and better off areas might be considered, using such savings to provide vital additional living space in low income high density settlements, thereby bringing a little sunshine into the lives of slum dwellers. The perspective plans should, interalia, integrate the sectoral programmes and policies in the vital areas of power and transport and also provide the basic infrastructural facilities such as drinking water supply and sanitation·

4.4 A continuing policy of developing alternate settlements, identifying potential growth centres and revitalising the existing settlements by providing the necessary infrastructure and positive linkages with industries, especially of the small scale sector, should be an integral part of the urban land policy. It is essential that the communications, telecommunications and transport linkages are provided from the inception. This will also give the impetus required for shifting or relocating large establishments and also cater to new investments in alternate settlements.

4.5 For low income settlements, job and economic opportunities should be created and for this purpose following steps are recommended:

Land should be earmarked for low income settlements.

Land should be earmarked for small scale industrial units.

Connected vocational training centres should be established, to promote self employment and income generating activities.

Minimum infrastructural facilities by way of water and sanitation, electricity, communications, transport and social services should be provided.

4.6 The Government should discourage idling of land in cities by providing various fiscal incentives and disincentives. The Commission, in its first interim report, has already recommended the levy of vacant land tax which can be an effective instrument to curb idling of land. It is felt that the urban land is a very valuable but a limited resource, and therefore, its maximum but judicious use is recommended.

4.7 As stated earlier, urban development is a State subject in the Indian Constitution and hence the laws and regulations governing the management of urban areas are generally enacted by State legislatures. However, it is possible for the Central Parliament to enact legislation about a particular aspect of urban development with the concurrence of the States as for example in the case of the Urban Land Ceiling Law and the legislation to Control Air and Water Pollution. At present, legislations are available concerning municipal councils and corporations, city improvement trusts, major urban development authorities like that in Delhi, Calcutta and Madras, and town and country planning as well as regional planning. The States have passed laws to set up separate functional agencies like housing or slum improvement boards, water supply and sewerage boards and special planning authorities for particular areas and many of them have set up pollution control boards. Master plans have been prepared for many cities under the town planning laws. The central Town and Country Planning Organisation has been responsible for the setting up of State town planning departments and for the issue of model planning laws and guidelines for plan preparation. The master plans provide for land use, zoning, subdivision and minimum plot sizes, densities and development controls. The standards relating to land use, floor space, parking standards, density, land requirements for open space and roads, setbacks utility standards, etc. are laid down by the local body with the approval of the State Government, the standards generally conforming to those in the manual of the Indian Standards Institution. It has been found that master plans could be implemented to a limited extent owing to paucity of resources, lack of organisational capacity and difficulties in land acquisition even as the rigid controls led to a proliferation of unauthorised development. The elitist standards excluded the poor from devising their own affordable shelter. Assisted by a lot of research on the subject, serious efforts have been made to liberalise the planning standards and building regulations especially for housing for the poor, to adopt low cost and incremental upgradable infrastructure, to discourage the under-utilisation of land, to integrate land use controls, transport and employment location so as to minimise travel and to bring residence and work place of the poor closer, to encourage mixed land uses and to reduce the costs of urban development.

It is also necessary to consolidate the many legislations dealing with town planning and development in each State and to amalgamate agencies having overlapping functions. It is necessary to strengthen the local bodies to implement the development plans and orient them to involve the people in the formulation and implementation of plans. Adequate provision and strategy for dealing with haphazard developments on the periphery of urban areas are urgently needed.

4.8 The resolution passed by the Conference of Housing Ministers held in May, 1987 is reproduced for urgent attention and action on the lines indicated in the resolution.

Realising that an appropriate land policy is most crucial for rapidly increasing the housing stock, especially for the weaker sections of the society, the Conference resolves that:

> "a process for expeditious acquisition of land through suitable administrative and legal mechanisms should include acquiring land expeditiously through a process of negotiations, at realistic prices closer to market values. This could be done through a Committee or a group to be duly constituted and empowered for deciding the rate of compensation to be paid and taking possession immediately. The State Governments should formulate appropriate procedures and implement them within a period of next six months."

Commendation

4.9 It is essential that an urban land inventory in the country is drawn up with an easily accessible land information system about the present land use and the future requirements. This would greatly facilitate correct investment decisions being made in various urban settlements and encourage more rational development of settlements. The land information system should not confine itself to the physical or resources aspects but also integrate information with the complexities and peculiarities of the land status. It is essential while preparing urban land inventory, the individual identified agencies should have access to modern technological advances. In all Class II cities and above, the information should be computerised and be easily accessible to the citizens to ensure an open system of land management.

4.10 The land information systems should be used to identify areas for optimum utilisation of land. This would be by locating available vacant lands within the city areas, upgrading and expanding the existing use, redensifying and redeveloping existing areas and by shifting and relocating certain uses of land. In this, a conscious attempt should be made to shift out and relocate unwielding commercial establishments including godown sheds, cargo and goods transport terminii and have a serious look at some of the existing holdings of some large corporations in the public and private sectors including land holdings of railways, Posts and Telegraphs and the like. Many of such corporations possess lands beyond their needs and large tracts have become either idle or encroached and inhibit proper development in the present context.

4.11 A more scientific and rational approach to city and urban designs is essential to ensure effective urban land management. In the context of rapid urbanisation, it is essential that urban designers should interact with other professionals, administrators and city planners and other community groups in framing the design concept of individual cities and neighbourhoods to accommodate the various requirements.

4.12 To preserve the environment:

there should be judicious selection of sites for location of projects;

the location of industries in the metro cities should be discouraged;

hazardous and obnoxious industries must be located at safe distances from human settlements;

the use of urban waste matter as source of building material, non-conventional energy manure and other purposes should be encouraged;

sources of energy, which are substitutes of fuelwood and coal should be explored and encouraged. Where the use of fuel wood or coal is inescapable, smokeless chullahs should be adopted;

pollution free zones near drinking water sources like river beds, lakes, ponds be ensured by declaring them as non-settlement areas;

cleaning of urban water sources and maintenance of drinking water systems should be rigidly enforced;

low cost sanitation should be adopted on a wide scale:

provision of non-motorised traffic zones, construction of cycle-tracks and pedestrians lanes and community spaces for human settlements should be encouraged.

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CHAPTER 5

FINANCE

5.1 Existing Housing Finance System

The existing housing finance system has two broad segments — formal and informal. The formal sources comprise (a) budgetary allocations of Central and State Governments; (b) general financial institutions/organisations like Life Insurance Corporation of India, General Insurance Corporation of India, Commercial Banks and Provident Funds, and (c) specialised housing finance institutions, viz. Housing and Urban Development Corporation Ltd. (HUDCO), apex and primary cooperative housing finance societies and a few housing finance companies set up in the private sector. The informal sources will include households, public and private sector employers providing housing loans to their employees.

5.2 Estimates of the annual investment flows into the housing sector indicate that in 1982-83, formal institutional funding of housing was Rs. 1,071.18 crores forming 25.6 per cent of the total investment of Rs. 4,179.23 crores, the balance Rs. 3,108.05 crores or 74.4 per cent coming from informal sources. If inter-institutional transfers of funds are adjusted, the real contribution of the formal sector would be still lower. Although its investment in housing has, however, been progressively increasing over the years, the various agencies in the formal sector will have to significantly step up their allocations to housing to make an impact.

5.3 Admittedly, compared to the huge volume of funds needed to tackle the housing problem, the resources available from the formal sector will be small. There is, therefore, need to adopt measures aimed at larger flow of resources for housing and at the same time, provide the stimulus and opportunity for households to undertake additional savings. At present, there is no proper institutional framework to encourage savings for the purpose of investment in housing nor is the existing system responsive to the characteristics of the housing market. During the past one and half decades, several expert groups have examined the housing problem in depth and recommended creation of a well-defined housing finance system through the establishment of appropriate institutions at various levels which will mobilise resources for housing and promote housing activity.

5.4 Need for 'A' specialised Housing Finance System

A Study Group appointed by the Banking Commission (Chairman Shri R. G. Saraiya) had recommended in 1971 creation of specialised housing finance institutions to enlarge the flow of funds to the housing sector. The R. C. Shah Working Group on Housing Finance set up by the Reserve Bank of India in 1978 had also recognised the need for a specialised central housing finance institution. The Seventh Five Year Plan has also proposed the establishment of a specialised financial institution in the form of a National Housing Bank, on the lines of 'NABARD' in order to fill the present lacuna of non-availability of long term finance to individual house builders. Such an institution has been conceived to play a wide-ranging role by functioning as a promotional agency for creating a diversified and extensive housing finance structure, besides mobilising and channelising resources for housing, providing facilities such as refinance, guarantee, etc.

5.6 Proposed institutional framework for housing finance

The institutional framework, to be developed in the field of housing finance, will have to be responsive to the different facets of the housing problem and will need to have two streams. One, to cater to the housing needs of the poorer and weaker sections of the society to whom house sites as also houses may have to be provided at a substantially subsidised cost and lower/middle income groups who will have to be given loan assistance at concessional rate of interest. The second stream will represent the non-subsidised sector where housing loans may have to be provided to supplement household savings for construction of houses.

5.7 Institutional structure for finance of housing

The Prime Minister, Shri Rajiv Gandhi, stated in his Budget Speech on 28th February, 1987 as follows:

> "A new financial structure will be created to provide funds for housing. At the apex level, a new national housing bank will be set up by the Reserve Bank of India with an equity capital of Rs. 100 crores. This Bank will promote housing institutions at both local and regional levels. The Reserve Bank will be announcing the details separately."

I. *Existing housing financing system*

The existing financing system has two broad segments—formal and informal. The formal sources comprise:

budgetary allocations of Central and State Governments.

general financial institutions/organisations like Life Insurance Corporation, General Insurance Corporation, commercial banks and provident funds,

HUDCO, cooperative housing finance institutions, HDFC.

The informal sources include public sector and private sector agencies to provide housing loans to their employees.

Since resource flow is very low, compared to the requirements, a need to adopt measures aimed at larger flow of resources for housing and at the same time to provide stimulus and opportunity for households to undertake additional savings is self-evident.

II. *Proposed National Housing Bank*

The creation of a National Housing Bank at the apex level and a supporting institutional set up at appropriate lower levels is intended to help meet the credit needs of individuals and their groups in solving their problems of housing and also facilitating resource mobilisation. The limitation of the existing system is that credit at reasonable rates of interest and terms of repayment is virtually not available to potential home owners. There is a need to restructure and mould the system in a way that people are motivated to save more in order to possess a dwelling unit. This would necessarily involve the mobilisation of savings/resources and putting these to proper use. The potential, people have for savings for home ownership, has to be tapped.

National Housing Bank has been proposed as the apex level housing finance institution to facilitate, promote, regulate and create at the state, regional and local levels, housing finance institutions and encourage appropriate lower level organisations to meet the individual credit needs of potential owners and facilitate channelisation of resources into the housing finance intermediary system through a chain of economically viable housing finance intermediaries. The functions of the National Housing Bank would be:

- to promote new housing finance institutions at the Regional/State level.
- to promote new institutions at base level by identifying viable promoter groups, providing seed capital to them as also professional expertise and support in initial years.
- to formulate policies relating to mobilisation of resources and extension of credit for housing, including creation of new instruments of savings linked to housing.
- to regulate the working of the housing finance institutions at the base level (both regional and local) and coordinate their activities as also those of other agencies in the housing field.
- to identify the impediments—legal, fiscal, physical, environmental and technical—to the active involvement of the household sector in deploying its savings in housing and to promote measures by way of changes in the law, enactment of new legislation, simplification of procedures etc. to remove them.
- to mobilise resources for housing.
- to extend financial support to housing finance intermediaries such as HUDCO, HDFC, State/Regional level housing finance institutions including apex cooperative housing finance societies and local level organisations.
- the National Housing Bank would have to endeavour to ensure that income targetting with a view to accommodate different categories of population and maximizing the benefits is kept in view by the housing finance intermediaries while advance credit for home loans.

III. *Proposed second/third tier level institutions*

The institutional frame-work to be developed in the field of housing finance will have to be responsive to the different facets of the housing problem and will need to have two streams. One, to cater to the housing needs of the poorer and weaker sections of the society to whom house sites as also houses may have to be provided at a substantially subsidised cost. The second stream will represent the non-subsidised sector where housing loans may have to be provided to scupplement household savings for construction of houses.

For the proper working of the institutional set up in regard to the non-subsidized sector, it is necessary to have local and regional level institutions. This would form the second and/or third tier(s) in the proposed set up. The second tier institutions will be the bridge between the potential owners and the National Housing Bank at the apex level. The housing finance intermediaries at the second tier level will be primary mobilisers of savings/resources and originators of home loans. The State/regional level institutions could be in the joint, state or private sector. For extending the system of financial intermediation to an increasing number of people, services of the institutions like the LIC, GIC, UTI, commercial and cooperative banks, can be utilised to optimise the operational/distribution costs.

The National Housing Bank will thus be a statutory body and will operate through the network of decentralised institutions at the second/third tiers catering to the needs of the regional and local levels. These institutions will function as intermediaries linking current house buyers in need of credit facilities with people who would have the money for either owning a house in the near future or for any other contingency.

To mobilise resources from institutions as well as individuals at the grass roots level, the housing finance intermediaries would have to devise attractive loaning and savings mechanisms. The present credit mechanisms available from housing finance institutions are of conventional type and do not necessarily serve the interests of the borrowers. Thereby they restrict the loaning capacity of the institution itself and also restrict the number of potential beneficiaries.

In order to maximise the credit facilities, various types of savings instruments/mechanisms will have to be formulated to cover individuals belonging both to the organised and unorganised sectors who have minimum income base to meet the repayment schedule. At present, many potential home owners are denied credit facilities simply because of lack of appreciation of their creditworthiness and inadequacy of lending mechanisms. At the same time, the need for providing task cover to the lending institutions has been recognised and a separate scheme for mortgage insurance has to be formulated.

5.8 Commendation

The State Governments would need to play a catalytic role for promoting the setting up of housing finance intermediaries at the regional, State and local levels. Focus should initially be on National Cities, metropolises and Class I cities for setting up housing finance institutions and savings and loan assistance on the model of building societies of U.K. in the small and medium towns. Cooperatives could also be strengthened suitably towards this end.

5.8 The Central and State Government could play a useful role by providing "seed" capital at the initial stages to the housing finance intermediaries.

5.9 A Studies should be commissioned to devise strategies to accelerate the flow of finance for shelter and services for benefitting the maximum number of beneficiaries, especially those living in the low income settlements.

5.10 Developing specific institutional mechanisms to provide poor households with greater access to affordable credit and establish with the help of voluntary organisations, linkages between the formal and informal sector.

5.11 Lending mechanisms for the poor should be devised to suit their irregular incomes and incremental building methods.

5.12 Keeping in view the fact that a sizeable percentage of workers in the organised and unorganised industries are without shelter, the owners of industries must allocate a small percentage of the capital and their annual profits for meeting specific housing needs of their workers.

CHAPTER 6

HOUSING THROUGH COOPERATIVE SECTOR

6.1 The cooperative movement in the housing sector has played a leading role in providing housing to many families, who would not normally come under the purview of home ownership. This is especially true of many of the countries in Europe specially those in the Scandinavian group of countries. In our own country there are several successful examples of cooperative housing for the middle, low and economically weaker sections of the population. With the need to optimise the use of scarce resources, land, building materials and finance, the cooperative housing sector would have to play an increasingly larger role in house construction and organising households into cooperatives for the purpose of house ownership.

6.2 The following strategies are therefore recommended:

(i) For low and middle income groups, the cooperative housing sector should be provided land at concessional rates backed up by developed land and accessibility to credit.

(ii) The role of the cooperative sector in house construction must be enlarged to reach the different income categories of population, including poor households.

(iii) Policies should promote cooperative housing construction and can help supplement public sector and individual self-help approaches. It is a distinctive feature of the cooperative housing movement that usually the members of the cooperative societies assist each other in building the houses.

(iv) In communities belonging to the low and economically weaker sections and where they are too poor to afford the cost of individual housing units and cannot easily obtain credit for shelter, they can be assisted through setting up of mutual benefit, organisations in which they pool their resources to buy building materials and contribute labour to construct each others dwelling units, thereby leading to substantial cost savings.

(v) Government can play a role of facilitator by encouraging voluntary organisations to organise poor households into cooperatives, provide improved construction technology and building materials and make available soft loans to such organisations.

(vi) The cooperative housing sector can also play an important role in starting building material centres which will provide low cost building materials at reasonable rates.

(vii) It is also necessary that there should be close linkages between research organisations such as NBO, CBRI, voluntary organisations and cooperative sector to help in the propagation and use of low cost housing through provision of low cost locally available building materials.

(viii) HUDCO, LIC, GIC can also play a major role in supplementing efforts by making positive shift in promoting flow of credit to cooperative sector.

(ix) The National Housing Bank would have to endeavour to ensure that income targetting with a view to accommodate different categories of population and maximizing the benefits is kept in view by the housing finance intermediaries while advancing credit for home loans.

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CHAPTER 7

HOUSING FOR THE POOR

7.1 The Government of India, since 1951, has been particularly concerned with the provision of shelter facilities for the poor.

7.2 The Conference of Housing Ministers held recently in May, 1987, considered various schemes for provision of shelter for the poor and adopted some important resolutions in this regard. The Working Group fully endorses the resolutions Nos. I. VII, XXII & XXIII (Annexures I—IV).

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CHAPTER 8

BUILDING MATERIALS

The Group considered the following Resolution adopted during the Conference:

(i) "to promote the use of low cost, alternative and new building materials in housing, thereby contributing to affordability of housing, the schedule of items of work of housing agencies/PWD should include the use of the same;

(ii) to promote the use of factory made building materials and components and adoption of innovative technology, the manufacturers of such materials/components should be given a preferential treatment through lumpsum/turnkey contracts at comparable rates, without going through normal tender procedure; and

(iii) to promote setting up of building materials manufacture and distribution centres and industries, captive markets and financial support be provided specially by housing authorities."

8.1 It emphasised use of low cost locally available, low energy consuming building materials and use of agricultural, industrial and other wastes was reiterated.

8.2 It further observed that incidence of indirect taxes and levies on building components and materials will be reviewed with a view to bring down the cost of construction so as to benefit the beneficiaries of housing programmes irrespective of their income groups. Incentives will be given to new building components produced out of agricultural or industrial wastes and those which lessen the consumption of scarce, costly or energy intensive materials like wood, iron, steel and cement.

8.3 Commendation

(i) Institutional finance should be made available for manufacturing building materials especially in the district, sub-division and block levels.

(ii) Building materials centres should be promoted by giving incentives in terms of cheap land and other physical and fiscal incentives to private entrepreneurs with a corresponding chain of building retailing centres to encourage the distribution of these products to the ultimate users.

(iii) In order to set an example to promote the use of these building materials, these building components should be included in the Schedule of Items of Works of housing agencies, PWDs who should use these materials and a percentage of these materials should be used by public sector agencies in their construction activities keeping in view the fact that public agencies should be an active user of low cost building materials.

(iv) When considering alternative materials and technologies, the highest priority should be given to cost-reduction and applications in the informal housing supply, which caters to the majority of low-income households.

(v) While the rational use of building materials is important, it is equally important to consider such design and sociological aspects as the way of life of the users, the distribution of space and the appropriate utilisation of building materials.

(vi) Emphasise should be placed on improving existing methods of production of building materials. Programmes of on-the-job training with regard to specified production, technological and management skills should be implemented.

(vii) Information on minor deposits of raw materials, including agricultural and industrial residues, should be collected and analyzed and such information should be made easily accessible to small-scale entrepreneurs.

(viii) It would be appropriate for countries engaged in developing products and methods and improving traditional materials and practices to develop their own standards. As far as possible, women should be actively involved in the formulation of standards that are directly concerned with areas which affect their lives and needs.

(ix) At the national level, efforts should participate more actively in pre-standardization work and documentation carried out by international organizations. Such efforts would be of help to them in formulating their standards and codes.

CHAPTER 9

BUILDING STANDARDS

9.1 We are of the view that the building standards should be taken out from the confines of archaic thinking, and standards which are indigenous in nature, local in application and easy in acceptance, should be evolved and propogated. Furthermore, the standards should be linked with the need of the beneficiaries. Presently, the standards are the western norm and law oriented while they should be need oriented. For this, necessary amendments have to be made in various laws.

We commend such an action, particularly in the interest of informal sector housing.

CHAPTER 10

INSTITUTION

10.1 The success of housing programmes depends on the strength of the institutions involved therein. As recommended in para 3.3, the Government's role should mainly be that of a 'facilitator' and not of 'deliverer' of housing. This change, therefore, calls for reorientation of the existing institutions and proper chartering of the new ones.

10.2 We would like to quote with approval the following important observations of the Task Force on Housing and Urban Development—shelter for the Urban Poor and Slum Improvement, constituted by the Planning Commission in 1983.

Institutional changes

The task Force noted with concern that in spite of policy commitments to self help housing by the poor and encouragement of private initiative as well as some stiking examples of successful low cost self help housing in recent years, Government sponsored house construction agencies continue to proliferate. These agencies, almost universally, are patterned on the bureaucratic model and adopt a rigid brick and mortar approach to housing. While some amount of urban housing may have to be built by specialised agencies in the public, private and cooperative sectors, there is overwhelming evidence to show that efforts to produce affordable housing for the poor by corporate bodies have failed. The evidence points to the fact that the bulk of housing of the poor is produced through their own efforts, legally or illegally. If public intervention in this field is to be effective it will have to take into account that woeful limitations of Governmental organisations abilities to cater to the needs of low income families in terms of costs, quality, functional adequacy, location and cumbersome processes.

A radical change in the orientation of public housing agencies is called for if they are to serve the need of low income people better. Housing is considered by many as an entry point to a comprehensive programme for developing people. While it may be too much to expect Housing Boards to become vehicles of social development overnight, a happy via media could be achieved if housing is regarded by these organisations as a component of an integrated programme of services which must include health, education, recreation and sports, mother and child care and support for income earning activities. This is well within the realm of possibility and some inspiration can be drawn from the Slum Clearance Board in Madras and the Municipal Corporation in Hyderabad.

Institutional matters

The Task Force considers a drastic change in the orientation of all public agencies like Housing Boards, engaged in shelter an essential pre-requisite to expanding the scope of housing programmes for the poor. The brick and mortar approach is totally unsuited to the problem of masses of shelterless poor, primarily because the procedures and systems entrenched in these organisations coupled with short sighted pricing policies for land cannot, in the best of circumstances, produce houses affordable and suited to low income people. These organisations should concentrate on development of land and infrastructure as recommended in the section dealing with social housing. They should cut down their house construction programmes to the minimum. They should treat housing as a part of an integrated programme for urban development and staff their organisations appropriately to deal with communities of people for whom they aim to develop planned human settlements. The Task Force notes with the greatest concern that so-called planning and development authorities in many cities have quickly deteriorated into house builders, sacrificing partially or wholly their legitimate functions as planners, regulators of development and promoters of critical infrastructure. These are the functions which would shift the focus of public agencies to areas of greatest need like slums and squatter settlements.

This reorientation of public agencies can be assisted by inducing the participation of non-governmental agencies in the provision of shelter programmes for the poor. In organising the poor for self-help, be that for construction of low cost houses of delivery of basic environmental or social services, the non-governmental voluntary agencies, either non-professional organisations or small community groups, should be encouraged to play a specific role. Many such agencies and groups with required orientation and skills are in existence today and many such groups are coming up rapidly in big cities. They are capable of playing multiple roles: starting from designing and implementing multi-sectoral projects to managing material banks, to running a small dispensary in an improved slum locality.

CHAPTER 11

LEGISLATIVE

11.1 Legislative support for housing in a cohesive fashion has been absent in the Indian scenario. In the constitution of India, housing does not find specific mention. However, in so far as housing for industrial labour is concerned, item 24 of the List III (Concurrent List) may be said to cover it because it deals comprehensively with the welfare of labour. This would being the subject in the Concurrent List in which both the Union and State Governments are concerned. The residual powers in relation to the subjects not mentioned in the State or Concurrent Lists, however, west in the Union Legislature. As such, the Union Government may be said to be directly concerned with the subject of Housing in general.

11.2 The Group endorses the policy directions contained in draft National Housing Policy and are reproduced below:

Rent Control laws: to balance the legitimate interests of landlords and tenants by ensuring a reasonable return on investment for the house-owners, and providing essential protection to tenants from arbitrary increases in rent and against eviction.

Urban Land (Ceiling and Regulation) Act, 1976: to make land and resources available for the housing of the economically weaker sections, the low and middle income groups as also to facilitate urban land consolidation.

Laws related to mortgages: to enable financing institutions to give loans on mortgages, thereby increasing the availability and flow of finance to intending home owners. It will also be necessary to introduce mortgage insurance and provide for speedy process of foreclosure. Develop a secondary mortgage market, thus opening vast possibilities of resources mobilisation for investment in the housing sector.

Declaring Housing as an industry: so that institutional finance and other facilities may become available to entrepreneurs in both public and private sector.

Laws relating to registration of developers and builders: these will be reviewed and strengthened to attract the entrepreneurs housing activity.

Urban Planning laws and development control regulations: to secure optimum and judicious utilisation of land keeping in view the local conditions and in particular the housing needs of the poor, low and middle income groups. Planning and building regulations will be formulated to promote low rise development.

Local planning and building codes: to simplify and rationalise them in order to facilitate imaginative designs, low cost housing and an acceptable level of environment keeping in view realistic requirements of economically weaker sections and low income groups.

Rules and regulations on conservation of buildings: to provide for conservation of building of historic, cultural, architectural and aesthetic importance.

Corporate development: emphasis will be laid on corporate development in the congested and high land value areas, including multiple ownership of plots, ownership apartments and condominiums. Appropriate laws will be enacted to facilitate such developments and their proper maintenance.

Various housing related controls: will be amended to change them into facilitators rather than constraints to housing activity. An example of such type of facilitative legislation is the Apartment Ownership Legislation.

Ration allocation of various enactments: Measures will be undertaken to rationalise various enactments which have an indirect impact on the growth of housing stock like Stamp Act, Registration, Cooperative Societies laws etc.

11.3 As we have stated earlier, most of the actions are on the legislative front including amendment of building regulations and standards have to be taken at the level of the State Governments. In fact, the position in this regard varies considerably and in some States, no proper legislation and promotional framework exists for housing. Systematic efforts needs to be initiated by the State Governments under the guidance of the Ministry of Urban Development. Simultaneously, parallel legislative action should be initiated by the Central Ministries incharge of Finance and Agriculture to provide a conducive local environment for investments in housing by the authorities, private sectors, cooperatives and individuals.

CHAPTER 12

RENTAL HOUSING

12.1 In any given time span, there will be individuals and households who are either not interested in owning a house or just cannot afford it. For such groups, rental housing is the answer. In 1981, 56.8 per cent urban households lived in rented accommodation.

12.2 Due to various laws and regulations, the investment in rental housing has not been very encouraging. For some time, the concept of rental housing has been phasing out from the market. It is time that rental housing should be encouraged to ease the situation. For this, various incentives should be introduced. The Commission, in its first interim report, has already commended various amendments in the Rent Control Legislations to remove bottlenecks which come in the way of rental housing. It hopes that after the commended amendments are brought on statute books and the fiscal incentives suggested in this report are introduced, investment in rental housing will increase.

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CHAPTER 13

INDUSTRIALISATION OF HOUSING

13.1 Industrialisation of housing implying standardisation, integration of the different stages of the whole production process, improved labour productivity, research and experiment integrated with production ensuring steady flow of demand will be promoted. To achieve this, Government policy support would be extended to long range housing programmes, ensuring availability of adequate developed land, appropriate planning and development controls and building codes, standardisation and development of skills.

In order to promote standardisation, mass production of building components and speed in construction, measures will be taken to develop favourable conditions conducive to the creation of assured demand commensurate with the economy of scales, for which necessary changes in the system of execution of works including changes in the tender procedures of Government public housing agencies will be introduced.

13.2 **Prefabrication**

The terms "prefabrication" and "industrialisation of building" are often interpreted differently in different countries. To some they mean the manufacturing of standardised products of components prior to assembly on the site, to others they mean essentially an attempt to mechanize traditional site operations; to others, again, they imply an attempt to use modern manufacturing techniques and mechanical operations to arrive at an efficiency comparable to that obtaining in other industries. "Industrialisation" or the general term "prefabrication" may be more correctly defined, according to the United Nations definition, as a continuity of production implying a steady flow of demand, standardisation, integration of the different stages of the whole production process, a high degree of organization of work, mechanization to replace manual labour wherever possible, and research and experimentation integrated with production.

13.3 **Mechanization of Services**

The present method of development of land and providing services like electricity, roads, water supply, sewerage, etc. is inadequate to cope up with the speed of industrialized methods of construction. In order to get the maximum benefit out of industrialization, it is necessary to mechanize provision of these services so that they are keep pace with the higher speed of construction.

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CHAPTER 14

INFORMAL SECTOR HOUSING

14.1 In the context of the International Year of Shelter for the Homeless, the efforts have to be made to ensure affordable shelter to the shelterless as well as poor sections in need of adequate shelter. Important suggestions in this regard have been made in the Draft National Housing Policy and the Group endorsed their suggestions as reproduced below:—

14.2 Considering the fact that a sizeable housing activity will continue to be in the informal sector, a major thrust to housing activity in the informal sector will be provided by facilitating construction of houses by individuals and their voluntary associations. The spectrum of informal sector housing is very vide, encompassing the various income groups. The strategy would include:—

(i) making available developed land at affordable prices and providing security of land tenure through pattas;

(ii) introduction of a Minimum Needs Programme to ensure an environment of minimum normative levels;

(iii) recognition of semi pucca as an acceptable dwelling unit by local authorities;

(iv) providing easy access to institutional finance;

(v) improving designs to suit local conditions and social needs;

(vi) dissemination of information on new and improved building materials and low-cost construction techniques; upgradation of construction skills to adopt the same;

(vii) promoting low-cost water supply and sanitation systems;

(viii) promotion of smokeless chullahs, biogas and other non-conventional sources of energy;

(ix) opening of building material supply outlets for sale of construction materials at affordable prices.

CHAPTER 15

SLUM AND SQUATTER SETTLEMENTS

15.1 Significant observations have been made about the problem of slums and squatter settlements by Task Force on Shelter for Urban Poor set up by the Planning Commission referred to earlier. The group endorses the observations contained in the report as well as the recommendations made by them for meaningful implementation of the slum improvement programme. In particular, it would draw attention to the need to link up the slum improvement programme with security of tenure and home improvement loans on the lines being implemented in Hyderabad, Vishakhapatnam, Madras and Bombay. It would however necessary to integrate slum improvement scheme to urban basic services like pre-school, nutrition, health, employment and connected activities for women and children with full participation of the community and voluntary groups. The observations made by us regarding information sector housing would apply equally to the approach to be adopted for upgrading slums and for converting them into viable human settlements. A plan provision for slum improvement will have to be integrated with overall plans for the housing sector in each State and city level plans for shelter and slum upgradation need to be prepared on the lines done in Madras and Bombay.

CHAPTER 16

CONSERVATION OF HOUSING STOCK

16.1 We attach a great importance to the repairs, renewal and extension of the existing housing stock. The upkeep of the existing stock is as important as the creation of new one. It is unfortunate that till now, no concrete programme in this connection has been prepared except in the State of Maharashtra. However, it is hoped that in future the programme may pick up a momentum. Similarly, HUDCO has also made a momentum. Similarly, HUDCO has tern, by taking up repairs financing. However, modest this beginning may be, it should be encouraged to the hilt. We recommend to the Government that it should prepare a nation-wide programme for the maintenance of the existing housing stock. We further recommend that a special drive should be launched for supporting the physical extension of the houses, so that, at less expenditure, an additional housing unit is made available. Furthermore, this programme should be brought in the housing finance market, wherein affordable capital should be provided for various activities under it.

16.2 In respect of strengthening, it is recommended that: —

(i) The strengthening or upgrading of housing stock should be accorded the same priority as the creation of new stock;

(ii) A nation-wide housing upgrading and conservation programme should be prepared and executed.

(iii) The strengthening programmes should be brought in the fold of housing finance market.

CHAPTER 17

MAN POWER DEVELOPMENT IN HOUSING

17.1 Human resources plays an important role in the housing sector. In this connection, an efficient planning and management system will be created in public institutions and other housing agencies to improve the delivery of services. Private and non-governmental institutions will also be helped to improve their management. In this context, housing and development planners, architects, engineers, social, health and urban community development workers and administrators need to be sensitised to achieve the objective of providing shelter to the weaker sections. They will also be encouraged to adopt innovative designs, approaches and strategies.

17.2 Architecture relevant to the Indian life-styles will be promoted and efforts made to improve the quality, design and construction of public housing. Towards this purpose engineering and architectural colleges and institutions imparting technical education should reorient their curriculam and run specific courses.

17.3 Improvement of construction skills should be another area which will receive special and continuous attention. Concerned programmes shall be devised to improve the capability of semi-skilled and skilled construction workers, artisans and petty contractor. Appropriate technology should be introduced with a view to increase the productivity and for which necessary training and equipment facilities will be provided. For this purpose training facilities would need to be decentralised at the regional, district and taluka levels.

17.4 Attempts should be made to bring about substantial improvement in the employment and working conditions of construction labourers. Special efforts will be made to improve women's skills and working conditions in the housing sector.

17.5 Attempts should also be made to involve non-governmental organisations on a large scale. To train construction workers in formal and informal sectors, due importance will be accorded to the role of non-Governmental organisations. Furthermore, non-formal training will also be provided to home-owners to help them maintain and improve their housing stock on a self-help basis.

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CHAPTER 18

ROLE OF WOMEN AND YOUTH IN HOUSING

18.1 It is unfortunate that women's role in housing development has not yet been recognised. They are the ones who not only provide for the care and support for infant and children but also provide labour and supplement family income as wage earner.

18.2 The role of women and youth in evolving shelter strategies is of crucial importance. Women in the informal sector especially those belonging to the economically weaker sections and the homeless can be made to play a meaningful role in effective shelter programme.

18.3 Women are perhaps most aware of the problems and the potential and innovativeness of women and the children of destitute and homeless families could be harnessed towards this end.

18.4 Women's access to shelter, essential services and community facilities should be given greater priority. Priority should be given to housing schemes for single women, destitute and migrant women labour. The Group has noted that the Union Government has already advised the State Governments that ownership of plots or houses should be in the joint name of wife and husband.

18.5 To supplement this, it is essential that community organisation are encouraged to develop women cooperatives.

18.6 Training programmes for upgrading the skills of women and youth designed to improve the shelter and services as also imparting income and employment generating training in low cost consumer products of daily use, to increase the affordability, should be considered.

18.7 Lastly, it is a sad commentary on the State of affairs that the most illiterate part of the population are women and children. Keeping in view the fact that children and women constitute a very substantial part of the population and a resourced and a hope for the future, it is essential that non-formal education and literacy are imparted to them through community base organisations. This will increase their ability to absorb new ideas and also give them better appreciation of the opportunities that are available. In this adoption of such technologies which help reduce the drudgury of women in performing the daily chores of life.

With the adoption of new strategies as enumerated in the report of the Working Group it is felt that this will go a long way in mitigating the hardships faced by the population and also help to some extent reducing the wide gaps prevailing in the country in housing sector with regard to availability, requirement and affordability. Unless these measures are given a serious thought, it is apprehended that the problem will go out of hands and the gap is likely to become unmanageable. Adoption of these strategies will be a step in the right direction for coping the requirement of the estimated urban population by 2000 A.D.

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ANNEXURE I

RESOLUTION NO. I

The Conference, in unequivocal terms, endorses the draft document on the National Housing Policy, congratulates the Government of India for the preparation of such a comprehensive document and commends it.

The Conference resolves that with a view to giving a concrete shape, within a definite time frame, to the policies embodied in the document, clear guidelines and specific action programmes be formulated for being implemented at the National and State levels and the progress in implementation should be monitored from time to time with a view to ensuring that the objectives set are achieved.

The Conference further resolves that the following points may be appropriately incorporated in the National Housing Policy document:

(i) The role of the Government and its agencies as promoters and facilitators of housing activity rather than as builders as such, by providing easy and increased access to developed land, credit and building materials be highlighted and the importance of individual and private efforts in the provision of housing be stressed;

(ii) *The disadvantaged* sections should be specifically stated to include the physically and mentally handicapped persons;

(iii) A clear objective of satisfying the basic housing needs by 2001 A.D. be set;

(iv) Importance and urgency of provision of shelter with a view to improving the overall quality of life, by promoting health, hygiene and sanitation and improving the internal and external environment, should be suitably stressed;

(v) Appropriate architectural designs and norms be evolved to cater to the special needs of the physically and mentally handicapped persons;

(vi) Use on a wider and increasing scale of non-conventional sources of energy in the housing sector be promoted;

(vii) The low cost technology be applied generally and on a wider scale and should not be restricted merely to the housing for the lower and weaker sections of the community; and

(viii) Appropriate technologies and designs be evolved and higher priority be accorded for housing the poor in the hilly and inaccessible areas.

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ANNEXURE II

RESOLUTION NO. II

The Conference *noted* that at present, matters pertaining to housing, shelter, rent control, urban land ceiling, rural and urban housing were dealt with by more than one department at the State Government level. It was *resolved* that with a view to ensuring a coordinated and uniform approach in respect of the inter-related and multi-faceted problem relating to housing, the State Government/Union Territory Administrations should ensure that the subject matters pertaining to Housing are dealt with by one Department at the Union and State levels, namely, the Ministry/Department dealing with Housing (i.e. Ministry of Urban Development at the Central level and Housing Department at the State level).

ANNEXURE III

RESOLUTION NO. XXII

The Conference notes

The enormous and increasing shortage of dwelling units in rural areas and taking note of the existing wide gap between the requirement and the resource allocation and the undesirable effects of involving contractors in the schemes for rural housing which are primarily designed to provide employment to the rural masses.

The Conference applauds and fully endorses:

(i) the call to provide one million houses to the rural shelterless during the current plan period;

(ii) the emphasis on housing for the weaker sections of the society, and

(iii) the concept of Seed Capital in financing the houses for weaker sections in the rural areas.

The Conference recommends

(i) That the Indira Awas Yojana should include other weaker sections, though priority should continue to be accorded to persons belonging to scheduled castes/scheduled tribes and bonded labour;

(ii) that the scope of the Indira Awas Yojana should be enlarged to include upgrading of existing unsatisfactory dwelling units;

(iii) that the use of locally available low cost building materials should be encouraged;

(iv) that the unit cost of dwelling units should be kept as low as possible, through innovative dealings and construction techniques;

(v) the State Governments should devise suitable 'loan-subsidy mix' for maximising the benefits by reaching the maximum number of rural houseless people;

(vi) the instalments of loan repayment may not be equal; rather these may gradually increase over the repayment period;

(vii) that the new clusters should be made attactive by provision of essential services like water supply and infrastructure like schools and health services;

(viii) that the beneficiaries of Indira Awas Yojana should also be provided with productive assets to enable them to improve their repaying capacity;

(ix) that the facilities available under the Improved Chullahs Scheme and water-seal latrine (Sulabh) Scheme should be made available in houses built under the Indira Awas Yojana;

(x) that the contractors and intermediaries should be eliminated and participation of beneficiaries themselves during the construction stage should be ensured;

(xi) that the State Governments may set up specialised nodal agency to look after rural housing and develop appropriate efficient agencies at grassroots level, and

(xii) that the students and trainees of Engineering Colleges, Schools of Architecture, Polytechnics and technical and vocational education institutions should have a period of attachment under such schemes before they qualify for formal degrees or diplomas.

ANNEXURE IV

RESOLUTION NO. XXIII

Recognising the need for identifying the target groups and in order to ensure that the benefits of development reach those for whom they are intended, this Conference *resolves* that there should be a proper and well-defined system of identifying the vulnerable groups and individuals belonging to the categories of the shelterless, economically weaker sections and the disadvantaged in both urban and rural areas.

The Conference further resolves that these groups can be further classified into two, namely, those having annual income below Rs. 3600 and those earning above Rs. 3600 but upto Rs. 8400 annually.

The Conference emphasises that the programmes for the lowest group should have a higher element of subsidy and those relatively better placed should have an appropriate loan-subsidy mix.

The Conference recognises that both rural and urban poverty are two sides of the same coin and hence *urges* both the Union and State Governments to evolve an integrated approach to tackle the problems of shelter for the poor in urban and rural areas. While doing so, special endeavour should be made to ensure that destitutes, women headed households and the needs of abandoned and homeless children are given special attention.

This Conference further *recognises* that recovery of housing advances is of paramount importance for the replication and extension of the programmes and should be given prompt attention.

Recognising the fact that housing is not an isolated need but a part of the need-hierarchy of the poor, the Conference stresses the need to dovetail housing programmes with other programmes of economic development and provision of physical and social infrastucture so that there is a package of schemes of which housing forms a part . In particular, schemes that yield a financial return, a part of which can be used for repayment of housing loan, should be a necessary component of such an integrated package.

Having considered the experience of various house construction programmes in different States, the Conference *resolves* that the involvement of the beneficiaries in house construction should be a necessary ingredient for all housing schemes. Such a system would also facilitate and promote the use of locally available materials, vernacular architecture, traditional construction practices and fusion of housing with the surrounding environment.

This Conference further *resolved* that Centres should be established in low income settlements for the propagation of cost-and-energy saving techniques and for training local artisans in adopting them. The training programmes available under the various departmental programmes such as TRYSEM could be fruitfully integrated for this purpose.

Having recognised the need for some uniformity in interest rate structure, etc., in housing finance, this Conference *resolved* that the financial institutions should form a consortium at the national/State levels to evolve such uniform guidelines and practices.

The group took into consideration the resolutions adopted by the Conference and recommends that for checking the deteriorating housing conditions, these resolutions should be given a practical shape by adopting the building materials and techniques evolved by C.B.R.I., S.E.R.C., R.R.L., N.B.O. etc. in Housing Sector by the State Housing Authorities atleast in 10% of their construction programmes.

Commendation

It is recommended that strategies be evolved by State Governments and others concerned to translate these resolutions into meaningful Action Plans.

The Group is convinced that it is possible to evolve strategies that would directly focus on this particular disadvantaged groups of people. For this purpose, it is necessary to identify these groups and develop plot demonstration projects on a large scale which could be evolved into the meaningful schemes in the couple of years so that the homelessness could be eleminated.

It is possible to ensure that atleast 2000 such homeless households in the metropolitan areas are provided with transit accommodation, some subsidy and loans with developed land at cost price alongwith dovetailing skills upgradation and income generating programmes so that over a period of decade, the problem is tackled successfully. The Constitution provides the right to live to every citizen of the country, and the provision of shelter is an esesntial mediu mto achieve these objectives.

A scheme for Central Sector Assistance for the urban homeless is recommended.

REPORT OF THE WORKING GROUP
ON
BUILDING TECHNOLOGY

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FOREWORD

The National Commission on Urbanisation set up by Government of India had constituted a Working Group on 'Building Technology' vide their letter No. 1/5(1)/86 NCU dated 9th October, 1986 in which Terms of Reference and Composition of the Group have been given. Subsequently, however, the Working Group was reconstituted vide Commission's letter No. 1/5(1)/86-NCU dated 1-4-87.

The Working Group held meetings in Delhi, Bombay, Poona and Nainital in which various aspects of urbanisation and building technology were considered in depth and number of documents were circulated for the study of the members of Working Group. The Group visited Building and Housing Projects and also building industries etc. The Group had a meeting with National Commission on Urbanisation on 20th August, 1987 when the Commission was apprised about the progress of work.

The Working Group has made every effort to expedite finalisation of its Report. However, the Members are of the view that this is a complex subject of great significance and requires detailed study and investigation to identify building technologies that are appropriate in the context of varying local situations.

With the information and data which the Working Group could obtain in short time at its disposal it has endeavoured to provide salient outlines of new and emerging trends in appropriate building technology for urbanisation which are given in the Report on the following pages. Some general and specific recommendations for follow up action to promote adoption of appropriate building technologies have been given in the Report.

The undersigned and Members of the Working Group believe that the contents of this Report would prove to be useful in the work of the Commission.

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URBANISATION AND BUILDING TECHNOLOGY

BUILDING AND HOUSING PROBLEMS

'Urbanisation' has been a continuous process since age-old times. However, in developing countries, the pace of urbanisation during the 19th century has been very fast due to the advent of the industrial age. The migration of rural population into urban centres has assumed unmanageable proportions resulting in urban chaos in which there is scarcity of built-up space for various activities and large mass of population are living in de-humanising environment.

As cities began to grow faster, scarcity of housing came about and slums and squatter settlements sprang up and inadequacy of essential services like potable water supply, drainage, sanitary disposal of wastes etc., started creating environmental pollution.

In the middle ages, the cities were in crisis mainly due to epidemics, illness and lack of hygiene, while today lack of shelter and decent housing, environmental pollution, overcrowding and congestion etc., are the major problems.

(a) Colossal Housing Shortage

The demand for houses for the growing urban population has increased immensely and the complexity of housing problem has become a topic of national concern. It has been estimated by National Buildings Organisation (NBO) that in 1986, the total shortage of housing was of the order of 25 million of which 6 million dwelling units was in the urban areas largely concentrated in metropolitan centres. It has been projected that by 2001, the shortage of housing in the country is expected to increase to 39.5 million dwelling units, of which the shortage in urban areas would be of the order of 9.3 million. In metropolitan centres and large cities the problem of pavement dwellers and homeless population needs to be satisfactorily resolved.

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(b) Low Rate of Housing Construction

Soon after independence, in the wake of the National Five-Year-Plan programme of development, a number of social housing schemes have been taken up under which subsidies and loans at low interest rate are provided for construction of houses for families belonging to different income groups such as the Economically Weaker Sections (EWS) and the Low Income Groups (LIG). However, due to steep rise in the cost of construction and scarcity of materials like cement, timber, bricks etc., and some other reasons, the rate of new housing construction has been low, thereby increasing the gap between demand and supply of housing.

According to the United Nations, if the backlog of housing is to be liquidated the rate of new housing construction should be of the order of 10 to 12 houses per thousand of population per annum over a period of 2-3 decades. As against this, the rate of new housing construction is only of the order of 3-4 houses per thousand of population per annum, as a result of which, the backlog of housing has been increasing.

IMPACT OF TECHNOLOGY ON URBAN DEVELOPMENT

While considering advances in building and housing technology it is appropriate to consider the overall impact of science and technology on urban development. This is because housing development is intimately related to technological developments in other sectors of urban development, particularly in the following important sectors the inter-relationship of which is indicated in Figure 1:—

(i) **Infra-structural Services:**
- Water supply
- Sewerage and Drainage
- Transportation
- Telecommunications

(ii) **Construction Technology**
- High-rise building technology
- Redevelopment programmes
- Industrial Development
- Control and Regulation

(iii) **Industrial Development**
- New materials and products
- Health and welfare
- Environmental controls
- Disaster Mitigation

(iv) **Energy Needs**
- Energy consumption
- Non-conventional energy
- Architecture and urban form
- Under surface construction

The impact of science and technology on urban development should be brought to bear on housing technology which should be considered in an integrated manner with the entire process of urban development. This is because it is not common to find that for want of required developments in other urban sectors, such as, lack of provision of water supply, sewerage and drainage, electricity supply, arrangements for transportation, etc., the houses constructed could not be occupied for some years until the augmentation of various infra-structural facilities was made. Also lack of development in housing sector has resulted in proliferation of slums and squatter settlements, unauthorised housing colonies, pavement dwellers and houseless population which are great handicaps, despite far-reaching developments in science and technology in various sectors of urban development.

(a) **Building Technology and Urbanisation**

It can be undoubtedly said that it is on account of great advances in science and technology that it has been possible to concentrate large population in urban centres catering adequately to their basic needs. Among the scientific and technological advances of far reaching consequences to the process of urbanisation include the following:

(i) Development of new materials like cement and steel and technology of production of concrete which has enabled construction of multi-occupancy buildings like cinema halls, auditoria, industrial buildings like factories and godowns, health buildings like hospitals, educational buildings like universities, colleges, recreational buildings like sports stadia, large office blocks and residential neighbourhoods.

(ii) The ability to plan, design and construct multi-storeyed buildings including sky-scrappers ensuring safety, convenience and comfort.

(iii) Provision of essential services like piped water supply system, sewerage, supply of electricity, fire safety of buildings and measures for disaster mitigation.

(iv) Regulation and control of development of cities through formulation and implementation of building regulatory laws, anti-pollution measures etc.

(b) **Housing Technology Inter-face with Urbanisation**

The inter-face between urbanisation and housing technology is shown in Figure II. Housing developments could be broadly classified as:

(i) **Low rise Housing:** In this type of development 1 to 3 storey construction is predominant with load bearing construction. Locally available materials like burnt clay bricks, stones, lime etc., are used for construction. The construction technology is labour intensive. Greater attention to standardisation in housing and conformity with building by-laws and codes of construction practices has become necessary for achieving economy in housing construction.

(ii) **Medium-rise Housing:** In this type of development group housing of 4 to 5 storeyed construction is adopted. RCC framed construction or load bearing construction using materials like cement, steel and bricks is employed. Low energy is required for construction as mostly labour intensive methods are employed. Besides greater degree of standardisation and conformity to building by-laws and codes of construction practices, new concepts like modular co-ordination, unification of building practices and disaster mitigation aspects have to be given due importance.

(iii) **High-rise Housing:** In this type of development more than 5 storeyed apartment housing are put up. Reinforced concrete structure is adopted. The construction is energy intensive. In addition to adoption of standardisation and modular co-ordination and unification of building practices, industrialised building methods, prefabrication and systems approach to building are being increasingly adopted for economy and speed in construction.

APPROPRIATE BUILDING TECHNOLOGY

In order to solve the colossal problem of housing in urban areas, great importance is attached to research and development work for evolving appropriate building technologies and their adoption in practice with a view of achieving utmost economy and speed and also optimum utilisation of indigenous resources and conservation of scarce resources.

In the context of rapid pace of urbanisation a number of new materials, construction techniques, design concepts, planning strategies and working methods etc., have been evolved through research to cater to the requirements of building and housing at economical cost. Important advances in housing and building technology relevant to urban development include the following:

Technology of High-rise development

Pre-fabricated building techniques

Standardisational and Dimensional co-ordination in building.

Technology for optimum utilisation of scarce resources like cement and steel, energy etc.

Rationalisation of structural design practices

Economical planning and installation of services

Better method of construction and productivity

Use of machinery and equipment for quality and speed in construction

Better organisation and management of works

System approach and Industrialisation of building process.

Speedier and economic construction plays a significant part in housing and urban development. Urban growth, decay and renewal is a continuing cycle of operation. Appropriate technology is required for construction of houses and other types of building on massive scale, with utmost economy and speed.

At the same time, it needs to be ensured that environmental pollution on account of heavy concentration of population in urban centres is abated. As building technologies are concerned with catering to the basic needs to human beings, it is also important to take into consideration the social and the economic aspects of built environment so that it brings about an improvement in the quality of life of the urban people.

As inner city areas have been aging fast, appropriate technology for maintenance, repair and conservation of existing housing stock has also become a matter of great significance. Only in Maharashtra, a Repair and Reconstruction Board has been set up so far.

The importance of importing appropriate technological advances in building and housing construction to support the rapid programme of urban development is briefly indicated here.—

(a) **Standardisation:** To facilitate mass production and to achieve economy of scale standardisation in housing should be adopted to the extent possible. The success of modern industrialised building methods will depend to a large extent on adoption of standardisation.

(b) **Modular Co-ordination:** For undertaking massive urban housing programmes with economy and speed, it is also incumbent to adopt dimensional co-ordination which is popularly called modular co-ordination. It is based on 10 c.m. module which has been universally accepted. It results in appreciable saving in construction, time and labour, reduction of wastages, easy inter-changeability or parts and components, mass production etc.

(c) **Typification of Designs:** Typification of building designs provides a means to which greater degress of repetition of all parts and products could be applied in design and production. It helps to reduce the number of size and components required. It permits streamlining of assembly operations and simplifies them.

(d) **Building Bye-laws and Codes:** Existing building bye-laws which are restrictive and diversified in character and impede faster pace of urban development need to be modified so as to encourage the use of new housing concepts and design, economical use of materials and faster pace of construction. The National Building Code of India which has been formulated by synthesising latest developments in building science and technology needs to be adopted by all concerned.

(e) **New Housing Technologies:** It is also necessary to consider the adoption of new methods of housing construction like prefabrication. Though initially these may be expensive but with the successive rise in the cost of traditional building materials and labour wages, as we have been experiencing, these may break even in cost over a period of time. Also with the development of prefabricated building methods suited to our conditions and fulfilment of pre-requisites for adoption of prefabrication, it would be possible to make prefab housing economical.

(f) **Reduction in Building Time:** As regards speed in building indicative studies of some housing projects of four storeyed construction built by traditional methods have shown that the completion time of housing projects could be reduced by about 40 per cent by adoption of large panel prefabricated building methods; and about 30 per cent by adoption of prefabricated horizontal building components.

As an exercise on the basis of Critical Path Method of programming of execution work, the expected time taken for building by (i) traditional method, (ii) partial prefabricated technique and (iii) full prefabrication is shown in *Figure-III*. Therefore, along with the rationalised traditional building methods the use of prefabricated building components particularly for flooring and roofing, and large panel pre-fabricated construction should be considered for increasing the productivity, speed and economy in house construction specially in urban centres.

(g) **Pre-requisites for Prefabrication:** Unlike the traditional methods of construction, prefabricated building techniques cannot take off without accomplishment of essential pre-requisites such as:

(i) Long range programme of construction on mass scale.

(ii) Standardisation and typification of building designs, materials, specifications and codes of practices.

(iii) Establishment of factories for producing building components and housing elements.

(iv) Availability of equipment for handling, transportation and hoisting of building components.

(v) Availability of required type of skilled workers and technicians for production, handling, transportation and erection work at site, of prefabricated building components for housing elements.

(vi) Better administration, organisation and management of works.

(vii) Continuous research and development work for evolving better building methods and training programmes for execution of works expeditiously and economically.

EMERGING BUILDING AND HOUSING PROBLEMS

In addition, special attention is to be given to tackling the problems arising out of urbanisation such as:

Catering to the requirements of Group Housing Schemes.

Incremental housing concept for the informal sector.

Technical advice and guidance to housing co-operatives and common man building his house.

Maintenance and management of large housing estates.

Repair and reconstruction of dilapidated buildings.

Redevelopment of inner city areas.

Disaster mitigation in urban centres.

Prevention and mitigation of environmental pollution.

Conservation of Energy.

RESEARCH AND DEVELOPMENT

Considerable research and development work have been undertaken by research centres particularly, the Central Building Research Institute, Roorkee, the Structural Engineering Research Centre Madras and Roorkee, the National Institute of Environmental Research, Nagpur, the National Council for Building Materials, Ballabhgarh, etc., in evolving new construction techniques, materials and design concepts.

The National Buildings Organisation, Ministry of Urban Development, which was set up 194 is engaged in promoting low cost building materials. It is also promoting application of research with a view to bringing about improvement in building and reduction in cost of construction. If the face of growing challenge of building and housing, research and development work are required to be augmented considerably on the following lines.

(i) **Experimental/Demonstration Projects:** For field trials and evaluation of new construction techniques and materials, the central and state construction departments like P.W.D.'s, Housing Boards and City Development Authorities and other Central & Public Sector Construction Departments should earmark upto 1% of their building budget for putting up experimental/demonstration housing and building projects.

(ii) **Economical Space Norms** for planning of different types of public buildings specially of repetitive types of building and residential buildings should be formulated which should be progressively upgraded.

(iii) **Housing for special Groups** Women, the Aged, the Handicapped, the Youth etc., should be given due consideration.

(iv) **Modular Coordination** in Building Industry should be adopted.

(v) **New Building Material Industries** should be set up to augment the supply of building materials and emphasis should be given to utilisation of industrial and agricultural wastes.

(vi) **The revision of outdated Building Codes and Bye-Laws** should be done in conformity with National Building Code of India 1985. (Revised Edition).

(vii) **Improved use of local materials** for construction of houses of all types at low cost should be fully exploited.

(viii) **Self-Built Housing Technology** should be evolved and adopted to reduce the cost of construction specially for EWS housing.

(ix) **Unification of Building Practices** should be undertaken by adopting All India Standard Schedule of Rates & Specifications brought out by NBO.

(x) **Research in modernisation of Construction Industry** technology and building methods should be conducted to improve quality and ensure speed and economy.

(xi) **Safety** in construction industry should enhanced.

(xii) **Productivity and Management** in construction industry should be developed to cope up with advances in building technology.

(xiii) **Value Engineering and Value Analysis** in building and housing should be applied.

(xiv) **Statistical Data on Housing** demand and supply and building industry brought out by NBO should be augmented.

RECOMMENDATIONS

The important recommendations include the following:

1. **High density housing on peripheral areas of urban centres**

Due to large scale migration on the peripheral areas of urban centres, new settlements spring up generally beyond the Municipal limits without conforming to any developmental regulations. To cater to the expanding urban areas, it is necessary to regulate development of peripheral areas of urban centres by planning high density low cost housing to cater to the needs of economically weaker sections of the society who come to cities in search of employment. Taking into consideration the low affordability of the migrants, from rural areas, incremental housing concept should be adopted for providing them shelter largely through self-help. Use of appropriate materials and construction techniques for self-help housing fulfilling the requirements of modern housing in urban areas needs to be developed, along with necessary infrastructure so that distance between work centres and housing could be minimised.

2. **Suitable technical options for augmenting the housing stock for different target groups.**

The process of urban development essentially involves large scale growth of housing for different target groups and over a period of time, the conservation of existing housing stock becomes a matter of great importance, particularly in the central city areas and ultimately to cater to modern requirements, redevelopment and reconstruction work are required to be undertaken. Appropriate technological options have to be evolved to tackle different phases of urban growth, including conservation of old repairable housing stock and creating new for increasing need.

3. Re-defining the role of participating agencies involved in Housing

In urban areas, a number of agencies are involved in providing housing which calls for integrated approach and proper co-ordination. To benefit from the latest advances in housing construction technology, appropriate institutional mechanisms are required to establish proper co-ordination to achieve optimum results.

4. Research and development in building materials

In urban constructions, more than 75 per cent of the cost of housing accounts for building materials. In the wake of large programme of housing construction, almost all types of building materials are found to be in short supply. The traditional building materials are being produced in unorganised sectors and there are severe limitations in augmenting the production. A variety of new alternate and substitute materials have been evolved through research which needs to be produced in greater quantities. Research in development of new building material products and components based on locally available raw material resources as well as utilisation of industrial and agricultural waste should be given priority with a view to making available building materials at a cheaper cost with desired performance requirements. For this, up to one per cent of the construction budget should be earmarked for research and development in evolving cheaper building materials. To promote development of building materials industry, a National Building Materials Development Corporation should be set up to increase the productivity and efficiency of existing production units, to set up industries for production of new building materials and to promote the adoption of new, alternate and substitute building materials.

5. Urban disaster mitigation

With the large concentration of population in urban centres, particularly in metropolitan centres and large cities, and on account of vulnerability, high susceptibility to various types of disasters like earthquake, cyclones, floods, fire etc., high priority should be accorded to disaster mitigation in planning, design and housing construction along with all other infrastructure facilities so as to minimise large scale damage and destruction.

6. Rate of New Housing Construction

To cope with the fast increasing urban housing demand, it is necessary that adequate rate of new housing construction should be ensured. For this, it is necessary to lay down specific targets and to match the resources such as materials, trained man power and cash inflow to achieve the targets expeditiously. The United Nations stipulated that developing countries should achieve rate of new housing construction of the order of 10 to 12 houses per thousand of population annually if the existing backlog of housing is to be liquidated in two or three decades' time. Against this, it has been roughly estimated that the new rate of housing construction at present is only of the order of 3 houses per thousand of population annually, which needs to be considerably increased. This brings to focus the basic need to give a boost to the production of a variety of building materials and to organise training of skilled man power with a view to improve targetted rate of production of dwellings.

7. Housing Information Net-work

Apart from new housing construction in the formal sector, the informal sector particularly, in the low-income brackets is responsible for large volume of housing construction. This type of housing construction activity is largely undertaken through self-help with low cost available building materials. Lack of regulations and development control and their implementation generally results in haphazard urban housing development particularly in the informal sector which needs to be regulated. For this, it is of greater importance that the common man interested in building his house should be provided with necessary technical and other information so that he is educated in the matter of house building and is able to ensure the optimum utilisation of his scarce resources such as finance, land, building materials etc. He is to be assisted to build more durable and livable houses which could be maintained at an economical cost. For this, a net-work of information centres along with building display centres should be set up to promote self-built housing and to channelise the financial and other assistance made available by the Government, particularly, for the economically weaker sections of the society. Public education through mass media such as radio, TV, and press should be organised to build up an awareness, for improvement of housing and environmental conditions in a sustained manner.

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8. Public distribution system for building materials

In order to make available building materials at low cost within the affordable range of the common man, particularly belonging to the economically weaker sections of the society, a system of public distribution of building materials through fair price shops in a decentralised manner should be organised along with technical guidance to the house builders for ensuring optimum use of building materials and thereby boosting the housing construction activity.

9. Adoption of Innovation Housing Technology

In any large scale housing project taken up by public sector agencies, at least 10 per cent of the houses should be constructed incorporating appropriate new materials, construction techniques and design concept.

10. Pre-requisites for Industralised Building Methods

For adoption of industrialised building methods and prefabricated construction techniques the essential pre-requisites should be fulfilled which include:

Large-scale turnover of houses and building components to achieve mass production and economy of scale of operations;

Continuity of demand and assured market

Standardisation and modular coordination in design and construction of houses

Support to the manufacture of prefab building components at the construction site or in centralised factories.

11. Strategy for Action for Appropriate Technology

The policy and strategy for adoption of appropriate technology for housing for each settlement like metropolitan cities, large cities, medium and small towns should be evolved taking into consideration the specific local requirements.

12. Institutional Base for Technology change

Appropriate institutional base for implementing the housing policies and programmes should be evolved and suitable modifications in administrative procedures for adoption of innovative construction technologies, materials and design concepts should be made. The National Buildings Organisation which was set up in 1954 to develop a comprehensive approach to all aspects of housing and building, more particularly to effect reduction in cost and improvement in building, should be adequately strengthened to promote appropriate technology and bring about its adoption in practice on country wide basis.

13. Housing for Special Groups

(i) **Women:** Settlement policies and planning should be geared in such a way that women can play more visible role in the human settlements development process and that priority investments in infrastructure should take into consideration the needs of women.

Keeping in view the emerging needs of working women, single or with children, arrangements for providing them residential accommodation in proximity with their work centres should be devised.

(ii) **Aged and Handicapped:** Special schemes should be evolved to provide adequate housing for the aged to enable them to have houses either on ownership basis or on rental basis keeping in view their paying capacity.

The special needs of the handicapped should be given due consideration in the planning and design of urban housing and human settlements.

(iii) **Young People:** Housing needs and requirements of the young people who migrate in large numbers to the urban centres in search of employment, should be given due consideration and their active participation in shelter and infrastructure programmes should be brought about.

(iv) **Homeless:** Attention should be given on priority basis for tackling the problem of providing shelter for the people who are rendered homeless due to natural disasters such as floods cyclones, earthquakes, fires, etc. which frequently occur in our country.

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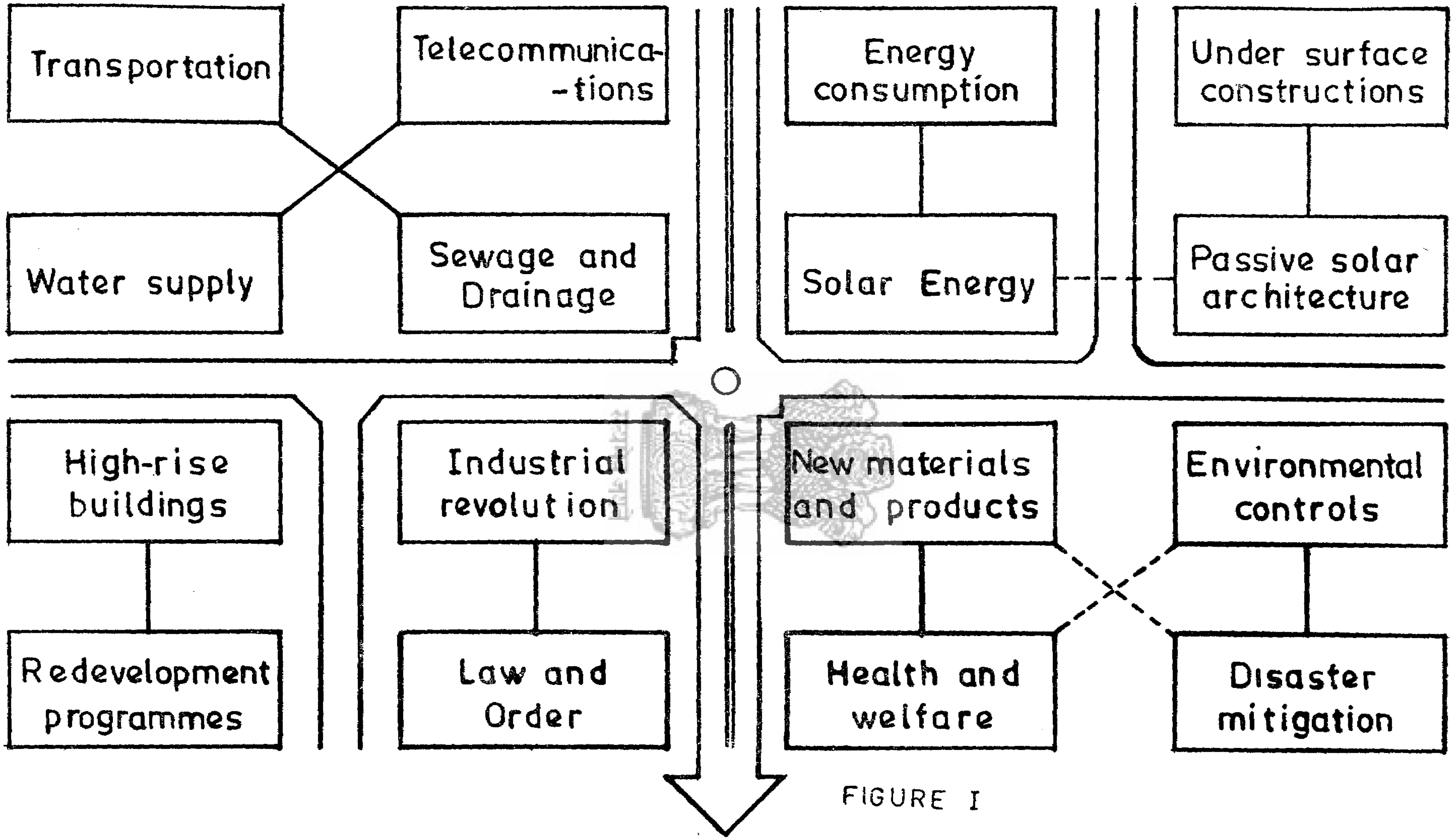


FIGURE I

IMPACT OF
SCIENCE & TECHNOLOGY ON
URBAN DEVELOPMENT

URBANISATION AND HOUSING TECHNOLOGY
INTERFACE

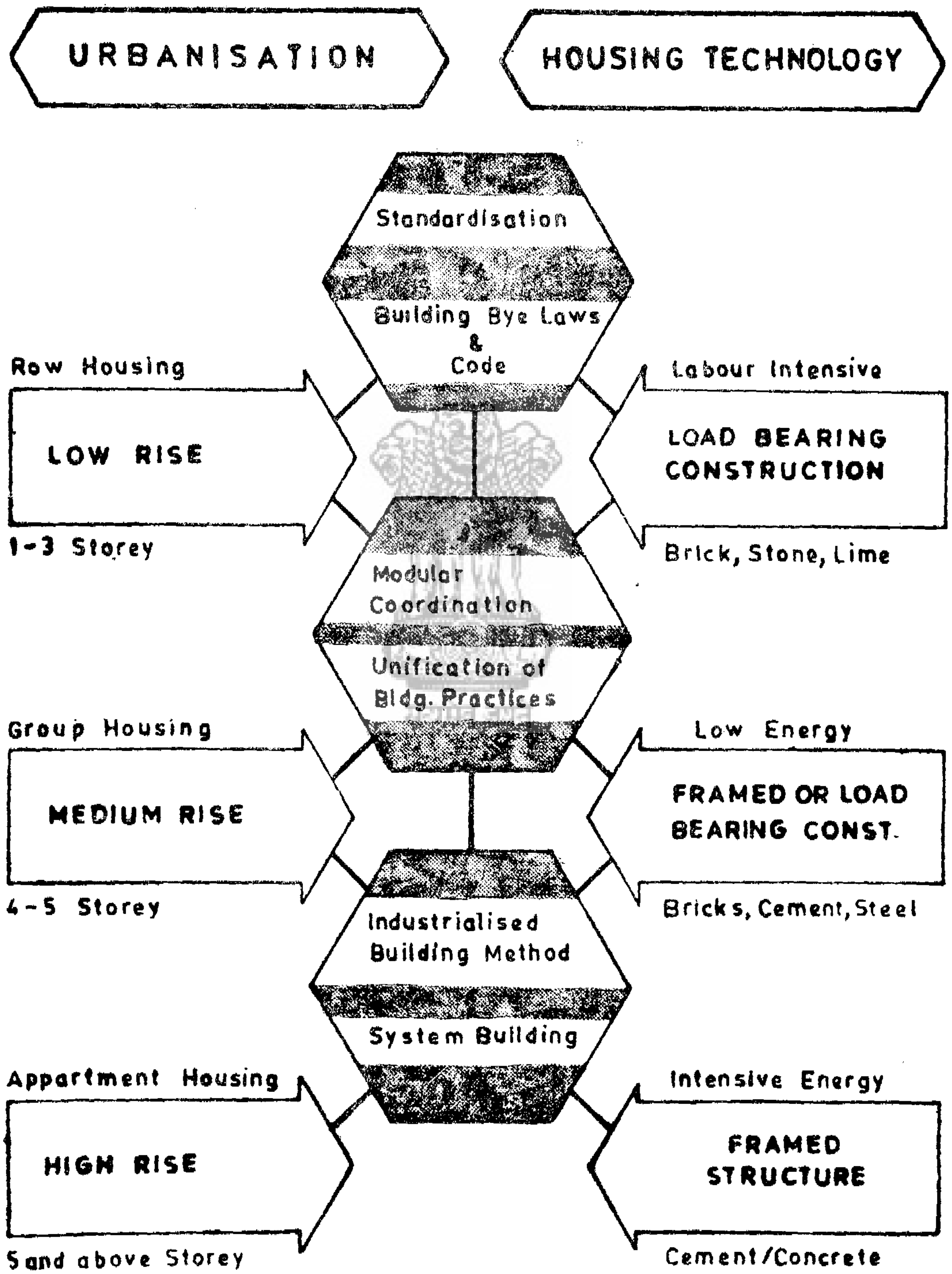
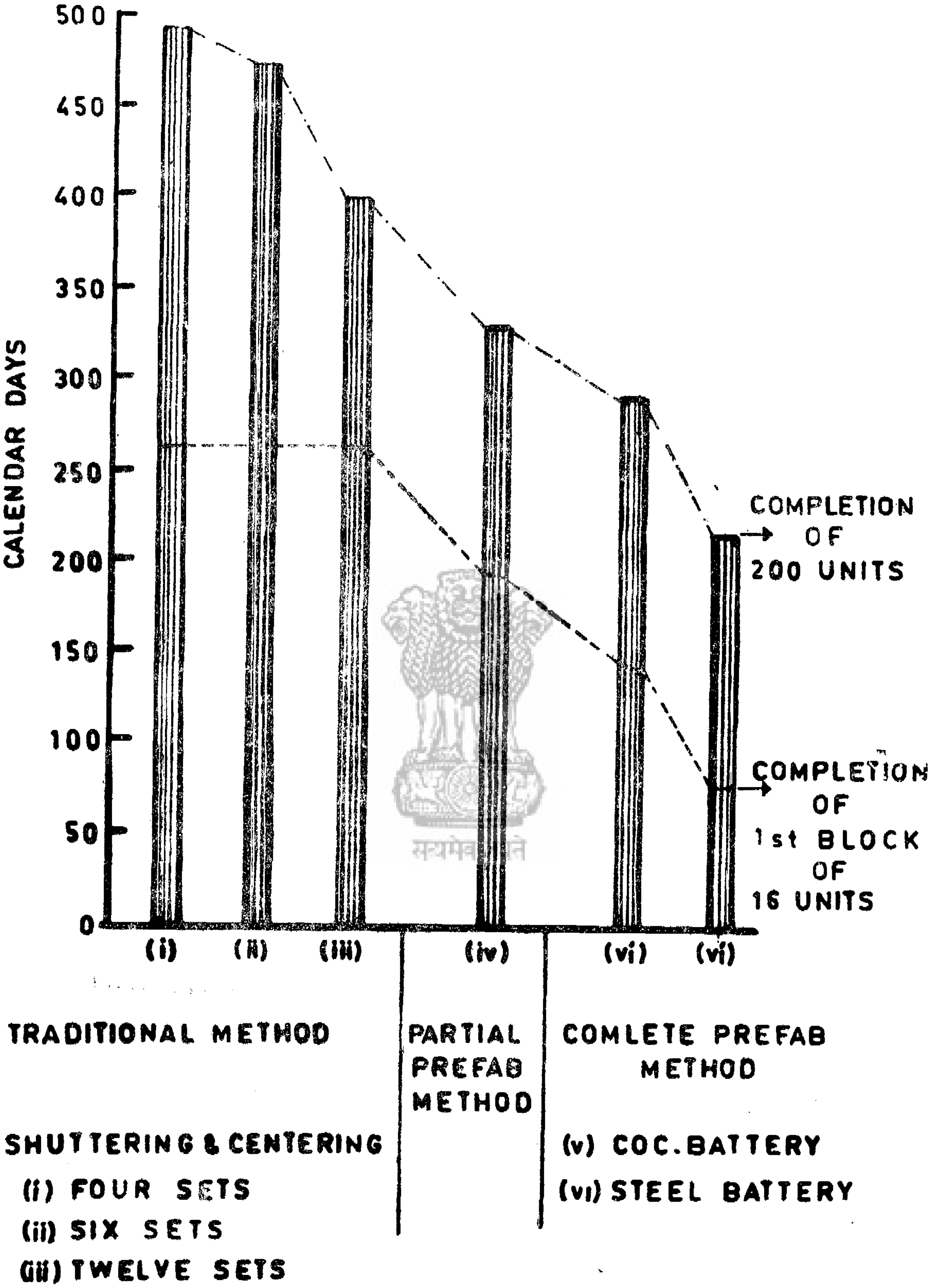


FIGURE II



ESTIMATED CONSTRUTION TIME FOR 200 L.I.G. UNITS WITH DIFFERENT CONSTRUCTION METHODS

REPORT OF THE WORKING GROUP
ON
SELF FINANCING MECHANISM

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CHAPTER 1

INTRODUCTION

1.00. Cities generate wealth

1.01 In most developing countries, but particularly in India, urbanisation has been seen as a "Social Cost" of industrialisation which has to be met by imposing taxes to divert a part of the increased national product generated by industry and trade into city development and the provision of shelter.

1.02 This approach has not proved effective. For a variety of reasons, some of which are mentioned elsewhere in this report, revenues generated through taxation, such as Municipal dues, ground rents, and house and property taxes, water charges have not been sufficed to meet the ever rising cost of urban development. In the smaller towns the financial problems of the municipalities have been aggravated by the abolition of certain local taxes, notably in some States, the Octroi.

1.03 The premise upon which the sub-group's report is based is that urbanisation is not a drain on a nation's resources, but creates wealth. It is not only industrial, trading or service establishments located in a city that generate income and wealth, but the city itself, by virtue of being a city.

1.04 The source of this wealth is intangible, but very real, none the less. It springs from the advantages, both social and economic, that living in large clusters of human being confers on each member of the cluster. These advantages are so numerous that it is not possible to list them exhaustively. Some of the more important ones are a larger immediate market, greater opportunities for product diversification, easier and more assured supply of raw materials, better availability of power, water and other services, easier communication with both buyers and sellers, better transport connections with other centres, a larger potential supply of labour, better recreational facilities, more varied opportunities for social contacts, better schools and colleges and better medical facilities.

1.05 All of these together are reflected in the ever higher prices, people are prepared to pay for land or a dwelling in a city or town and in the migration of villages to the towns and cities.

1.06 These advantages are nearly all self-reinforcing i.e., they grow as the city itself grows. A tell-tale indicator is the fact that land prices tend to rise more rapidly in large cities than in small ones, even if both are growing at the same rate.

1.07 The Working Group believes that urban development can be made largely if not wholly self-financing, if only a small fraction of the added value that the urbanisation itself generates can be tapped for this purpose. The Working Group is of the view, that if the Central and State Governments regard urban development from this perspective, they will cease to regard urbanisation as a drain on their resources, and will see it as a source of revenue for financing economic development, generating employment and improving the quality of life.

1.08 Urban Development requires:—

(i) Land

(ii) Infrastructure services namely water, sewerage, access roads, and power connections,

(iii) Transport systems, and

(iv) Community facilities mainly school, hospitals, playgrounds and parks.

1.09 The goal of urban policy should be to find ways of financing the provision of these requirements from the resources that are generated by the city's growth itself.

1.10 In the following sections the Working Group has concentrated suggesting ways of meeting the first two requirements.

The major components of land development costs are water supply, sewerage and provision of social facilities. In all India Survey carried out for the planning Commission arrived at the following break up of the land development costs. It shows that water supply and sewerage system constitutes half of the urban infrastructure provision. Taking this in view the group decided to concentrate on these items. The percentage distribution of different components of land-development costs are as follows:—

Cost components	Percentage distribution of different components of land development costs % Range
Levelling & dressing	0.32 to 14.64
Roads	12.79 to 34.25
Water Supply	10.43 to 34.47
Sewerage	13.20 to 39.06
S.W. drains	6.16 to 16.95
Arboriculture external electrification	3.82 to 55.89

The goal of urban policy should be to find ways of financing the provision of these requirements from the resources that are generated by the city's growth itself. In this report we concentrate on suggesting a self financing mechanism in respect of land and land development costs.

1.11 The Working Group is of the view that transport costs are best met by minimising the need for mechanised and in larger cities for rapid transit system. This can be done by the appropriate planning of urban growth, and the creation of poly nodal cities backed by balanced spatial development of urban centres throughout the country. As such it lies outside the immediate scope of this report.

CHAPTER 2

LAND FOR URBAN GROWTH

2.01. Planned urban development has been frustrated in most large cities by the shortage of land. City authorities have found it increasingly difficult to acquire land for the extension of urban limits. The prime cause is the increasing resort to the bulk acquisition of large tracts of land. Large scale acquisition presents urban planners with a dilemma. If they pay the full market value of land, the cost is very high often prohibitive. If on the other hand they seek to acquire the land at prices lower than those prevailing in the market, the owners resist by all means at their command, usually moving the courts for stay orders.

The experience of Maharashtra reveals just how difficult land acquisition can be. Land acquisition was formerly governed by a provision of the constitution that defined the payment of a "just and equivalent compensation". This was usually deemed to be the market value of land plus a 30% solatium plus interest since the date of acquisition. Some State Governments have sought to take advantage of the 25th amendment of the Constitution which substituted the word "amount" for "compensation". Under this the Maharashtra Housing and Area Development Agency (MHADA) and the BMRDA stipulated that the owner of land should be paid 100 times the net monthly rent on the land. This was challanged in the Bombay High Court and the judgement went against MHADA. This judgement was reversed by the Supreme Court. But despite that, and despite the fact that 100 times the net monthly rent was not for off the market value of the land, neither of the two agencies has been able to acquire much land.

The experience of the Bangalore and Delhi Development Authorities has been no different.

Urban development has often been constrained by lack of resources for acquiring or purchasing land for urban use. In Bangalore for instance, the Bangalore Development Authority will have to acquire 13,093 ha. out of the 23,700 ha. of land needed under the Comprehensive Development Plan for 2001 A.D. At the current market price in the B.D.A. has sought to pay only Rs. 65,000/- to Rs. 70,000/-. But this has led to endless litigation. During the resulting delay, the owners of the notified lands have made their own layout plans and sold the land. As a result, a large number of unauthorised colonies have come up. In Delhi, the DDA has been paying an average of Rs. 50 per square meter in recent years or about Rs. 2,00,000 per acre. But, this price has been contested as was the land acquisition in the early years of the first Master Plan when rates of Rs. 10,000 to 20,000 were paid per acre. Delays have resulted. The DDA has still not received all the land notified in the 1962 master plan as ha. is under litigation. Of 14,100 acres in 1980 not much had been acquired by June, 1987.

Paying the market price for the land, including solatium, interest and compensation for investments made on it may also not expedite land development very much. The experience of Delhi and other cities shows that the owners still go to the courts, and only a few plots of land need to be blocked to prevent the orderly development of the entire area. Sentimental attachment apart, the owner also have some sound economic reasons for going to court. Even the unsatisfactory data available on land prices as annexure tables 1 & 3 show that they are rising as a rule much more rapidly than the cost of living or the rate of interest. Thus every year's delay between the notification of land for acquisition and its take over, widen the gap between the compensation to be paid and the actual market price. The fact that city authorities also use the registration price of land sale deeds as a benchmark for calculating the compensation in almost all land deeds. 40% or more of the price is paid in black money, increases the loss. the owners suffer. The wide and growing gap between the compensation to be paid and the market value also encourages illegal subdivision, and sale of the land and the mushrooming of unauthorised housing colonies. In Delhi unauthorised pukka dwelling units have come up between 1971 and 1981. These make up 24% of the total number of families added to the city's population during the decade. In Bangalore, acres had been occupied illegally, and had to be regularised by the Janata Government in 1976.

In the opinion of the Working Group the difficulties in acquiring land all stem from the fact that bulk acquisition shuts out the original owners of the land from the fruits of urban development, and therefore, make them its enemies. A far better course is to make the original owner partners in urban development by allowing them a share in its benefits.

This can be done by returning to the original owners, a part of their land after fully developing it for residential or commercial use. Two methods of doing this were suggested to the Working Group. The first is the Land Pooling System practised in South Korea. The second is the revival of the Bombay Town Planning Act of 1915, which is still on the statutes of Maharastra and Gujarat, but has falled into disuse.

The main difference between the two is that in the former the Housing or City Authority pools all the land in an area targeted for urban development provides the road, power lines, water and sewerage lines and then returns a portion of the developed land back to the original owners, keeping the rest for its use. The amount returned depends on the jump in value that takes place when raw land is developed for urban use. This is commonly three to four times the cost of the raw land, and often still more. Thus returning an equivalent amount of land to the original owner makes him a beneficiary of urban development, leaving the balance to be disposed of by the development authority.

Under the Bombay Town Planning Act, about 150 Urban Development Schemes have been implemented in Gujarat and about 100 in Maharashtra since 1915. Here the development authority, starts by identifying its need for land, pools the land or several owners, superimposes a layout plan on the land, and reallocates the land that is left over to the owners in proportion to their original land holdings. The cost of development of the land returned to the owner is offset against the original value of the actual amount of land acquired from him. The balance is either paid to or recovered from him.

The essential difference between the two is that in the Korea land pooling system, the development agency in essence obtains land in exchange for the cost of developing the share left to the owner. While under the Bombay Act, the Development Agency pays for the land it acquires while the owners pay only for the development of the portion left to them.

The land acquisition scheme under the Bombay Town Planning Act has the advantage of being one with which planners in India are familiar. But the experience of the last seventy years has also revealed its flaws. The most important is that the recovery of development charges is based not on actual cost but on estimated betterment. This is frozen on the date of the promulgation of the scheme. Since the time lag before the implementation of the scheme may stretch to many years, the actual cost of development keeps rising. Thus the housing or urban development agency often ends with a sizeable cash loss. This happens because most of the land it acquires for public purposes is for roads, gardens and parks, on which it recovers nothing. While the land that is returned to the private owners goes into residential use, where the development costs are considerable.

Experience has also shown that the implementation is unduly delayed because of a multiplicity of government sanctions needed at different stages, most of which are completely purposeless. Each of these takes several months to obtain. In addition, the development of the land cannot be started untill all the previous stages have been gone through including the arbitration of disputes between the owners and the housing authorities.

The Working Group is of the view that these problems can be overcome if procedural delays are minimised, and the arbitration of disputes is done side-by-side with the development of the land (how much is returned to an owner and where being a question independent of the development of the land itself).

The Working Group also believes that losses can be avoided if the cost of development and the value of land are calculated for the same date. While delay may push up the cost of development, they will enhance the value of the land.

Lastly, Development Authorities can ensure not only that they recover costs but also that they make a profit by ensuring the land acquired for public use includes not only garden and roads but land for industrial and commercial use and land for public, housing schemes for the economically weaker sections. The cost of development of the latter can be recovered by charging full market rates for commercial and industrial plots.

Some idea of the amount of land that the development authority needs to return to the owners without their incurring any loss may be had from land prices in Bangalore and Delhi. In the former city the market price was around. Rs. 1.50 lakh per acre or Rs. 37.50 per sq. metre. Against this the BDA is charging Rs. 200 per sq. metre for its residential and sites and services plots from the low income and economically weaker sections. Thus the BDA will need to return less than one fifth of the land (18.75%). If all of this is earmarked for residential use the BDA will still, under the existing land use pattern in the city, be able to reserve 10% of the land for residential and another 13% for industrial and commercial use, on which it can earn enough to meet a large part of the cost of development.

In Delhi where the DDA has been spending on an average Rs. 50 per sq. metre on acquisition in recent years, it is charging Rs. 316 to Rs. 474 per sq. metre for land for LIG & MIG housing (see table 6). The minimum markup is thus six to nine times.

2.02. **Taxing vacant urban land**

Vacant land is to be found not only around the periphery of cities but also within the existing urban limits. Much of this land is owned by the Government, but sizable amounts are also in private hands. Leaving land within urban limits vacant is a waste of scarce resources not only because land itself is hard to come by in rapidly growing cities, but also because most of the land is already partially or very largely developed for urban use. While area and plot level infrastructure may not as yet have been created, main sewers, trunk water lines, and major road networks already pass through or beside such land. Bringing it into use thus requires very little extra expense. Leaving such land vacant needs to be penalised. The Working Group's proposal to levy a vacant urban land tax is intended to do this, in addition to raising resources for urban development. A fairly accurate idea of the amount of such land may be had from the estimates of the land that has been declared surplus under the urban Land (Ceiling and Regulation) Act 1976 (ULCRA). The amount of vacant private land in six large cities and in all the towns covered by ULCRA in 12 States and three union territories and the cantonments is given in tables 4 & 5. While the data are far from reliable they indicate that large amounts of urban land remain vacant but privately held.

The Working Group would like to propose the lifting of the ULCRA and its replacement by a tax on vacant urban land. Its Members felt strongly that a fiscal approach supported by proper landuse and management policies would achieve the objective that underlay the ULCRA far more effectively than the physical take over of the vacant Urban land with due compensation that was envisaged by the Act. The Working Group also believes that the fiscal and administrative roots are alternative ways of meeting the most productive use of the urban land and cannot be used simultaneously. Both start from the proviso, outlined above that leaving urban land vacant is a waste of resources that need to be discouraged and penalised. ULCRA sought to do this by dispossessing the owners of their surplus land and vesting the responsibility for its efficient use on the Government by giving it physical possession of the land. As is shown below it has failed. The urban vacant land tax is designed to achieve the same goal but it will do so by putting a powerful compulsion on the owners themselves to develop and use their land or failing that to sell it to the Government of their own accord. The Governments' only responsibility will be to impose a land use plan on the city and see that development occures in keeping with it. The replacement of ULCRA with the vacant land tax earns revenues for the city and State authorities in two ways. It saves the funds that would have been locked up in acquiring and developing the vacant land, and it adds to revenues through the yield of the tax.

Eleven years of ULCRA have revealed that it has completely failed to achieve its goals. Firstly, it has failed to give physical possession of any significant quantity of land to the State Governments. As on 30-5-1986 only 14.588 hectares out of 166,192 hectares had been acquired and vested with the State Governments, of the latter only 3851 ha. had been physically taken possession of. This amounts to a mere 2.3% of the urban vacant land.

While very little land has actually been obtained under ULCRA the Act has frozen transactions in privately held urban land and further sharply reduced its supply. This has pushed up land prices for the land not falling under its purview to levels completely out of line with incomes in this country, putting housing further out of reach of the middle classes. The drive to own a house has thus become harnessed to the creation of black money, through tax evasion, kickbacks and other criminal pursuits.

The clauses of ULCRA that permit land to be exempted from its purview have become among the most potent sources of corruption in bureaucracy. Further vitiating the moral authority of Government and bowing the legitimacy of the Democratic system.

Even the 166,192 hectares declared surplus (in Table 5) probably refers to not the land actually vacant, but the vacant land that has not been exempted on one of several grounds from ULCRA. Some idea of how large the exemption are may be had from the figures provided by the Karnataka Govt. In the five Corporation Towns of Bangalore, Mysore, Mangalore, Belgaum and Hubli-Dharwad a total of 31,286 hectares of land was declared vacant. Of this almost 21,000 hectares was exempted.

The scrapping of ULCRA will render the above exemptions pointless. The vacant land tax can therefore, be levied on all of the privately owned urban land that is vacant. This may come to as much as 4,00,000 hectares.

The Working Group would suggest the fixation of the tax at a constant percentage of the value of land.

A tax of one per cent on raw land and of as much as 2.5 per cent on serviced land would not be out of place. While these are sufficiently high to induce owner to develop their land as quickly as possible, as tables 1 and 3 show even 5 per cent is far less than the annual escalation of land prices in the large cities. Thus the Commission may consider proposing a schedule of rates according to (a) the size of city and (b) whether the land is raw or wholly or partially developed.

The distinction between developed and raw land is important because area and plot development cannot take place till the main sewers, waterlines, road and power lines have been brought within a reasonable distance of the vacant land. Thus the owners can legitimately claim in their absence that they are being taxed for leaving land vacant without being given the opportunity to put it to use.

In view of the difficulty of ascertaining market rates for land and the likelihood of litigation the city authorities/state governments may consider using the percentages fixed above as yardsticks and fix specific taxes on land in each area of the city. It is worth bearing in mind that only land that is zoned for private or government building should be subjected to the tax on land that is vacant but earmarked for roads, parks or schools will not be able to bear it.

Some idea of the revenue that can be generated by such tax may be had from Table 4. If the average value of the 4,400 hectares of vacant land in the six cities included therein is Rs. 1,000/- per sq. metre and half of it is in residential or commercial areas a 2.5% tax will yield Rs. 12.50 per sq. metre or Rs. 55 crores a year.

Similarly, if 1,00,000 hectares of the 1,66,000 hectares declared surplus (in Table 6) were to yield only Rs. 2.00 per sq. metre per year on an average, the yield would be Rs. 200 crores a year. *The Working Group proposes that the vacant land tax should only be levied on cities with a population of more than* 1,00,000.

Lastly, when government sells State owned land to private builders and cooperative societies it should give a period of grace (such as one year or 18 months) to them to get their plans passed, and begin to levy the tax only if they fail to do so. This also requires, however, that an equal responsibility be placed on the development authority to pass the plan during this grace period.

2.03. **Development cess**

Since expediting the use of vacant urban land is the main purpose of the proposed tax, its success will be reflected in the rate at which it yields dwindle. However, city authorities needs are likely to constant and indeed growing from year to year. To allow for a steady stream of income the Working Group proposes that the end of the vacant land tax with the passing of plans for construction should coincide with the levy of a development cess of such a magnitude that by investing it carefully, the city should be able to ensure itself of the same income by way of annual interest or dividends as the yield of the vacant land tax. An average of eight to ten times the yield of the vacant land tax may be considered appropriate. A survey of the practices prevailing in the various cities reveals no uniformity about either the levy of the development cess or the rates of levy. Thus, Delhi, Karnataka, and Haryana Government and others levy such cesses, but the Calcutta Metropolitan Development Authority levies no cess whatever and the Madras Metropolitan Development Authority levies a betterment charge 'on each change of land use'.

The rates of levy vary widely from Rs. 90 per sq. ft. of built-up space for high use buildings in Delhi to Rs. 55 per square yard of land by the Haryana Government to Rs. 23 per sq. yd. of land by the Bangalore Development Authority to Rs. 12 per sq. ft. of built-up floor area by the Bangalore Municipal Corporation in the inner city areas to five rupees per sq. metre for commercial use of agricultural land in the Madras Metropolitan area.

The Working Group recommends that the charges levied should be rationalised so as to equalise them for different kind of land use in cities of different sizes throughout the country. Most cesses are too low by any yardstick. For instance, with a floor area rate of one to one the Rs. 23 charged by the BDA comes to Rs. 2.56 per sq. ft. of built-up area.

The Working Group further proposes that the development cess be related to the sq. footage built and not the area of the plots and that it be levied at a higher rate, the higher is the FAR allowed for the plot in question.

2.04. **Financing—Construction of a Bridge to New Bombay**

A proposal to build a bridge across the harbour in Bombay to relieve the growing congestion in the city was accepted by the Maharashtra Government 20 years ago. What is preventing its construction is lack of funds. The initial estimate of Rs. 6 crores for a bridge from Trombay to Nhava Sheva via Elephanta, has in the meantime ballooned to perhaps twenty times that figure. The Maharashtra Government has finally persuaded the railways to build a spur line from Mankhurd (where the Railways are building their own bridge across Thane creek) down to the new port of Nhava Sheva, but only by agreeing to meet the cost of construction. But even this new rail link is unlikely to provide sufficiently fast and easy access to tempt government, and commercial offices in particular, to cross the harbour. The congestion in Bombay is, therefore, likely to continue growing.

Systematic land use planning and coordinated action can, however, raise resources needed for building the bridge and the new commuter railway, without making any further demands upon the Maharashtra Government's limited resources. The population of Bombay is growing at almost 400,000 a year. If planners aim at gross urban density of 140 per acre (350 per hectare) which is already in the high side, the city will still need over 1000 hectares of additional land per year to house just the increase in Bombay's population. This is more than 10 sq. kilometre per year. Since the development of a new urban areas takes a minimum of five years after the land has been acquired, it is advisable to plan the development of about 50 sq. km. of land area across the harbour, preferably around urban and Nhava Sheva and to plan an additional 10 sq. km. every year.

If half of this land is used for residential and commercial construction and 20 per cent of this half is reserved for the economically weaker sections, the project authorities for new Bombay will be able to offer 2,000 hectares i.e. 20 million sq. mts. (two crore sq. mts.) of land to real estate developers and future home owners at commercial prices.

The average price of commercial land in Bombay was Rs. 22,500 per sq. mt. in 1983 and of residential land Rs. 15,000 per sq. mt. Today these prices have more than doubled. Therefore, once a bridge connects the new to old Bombay it will be easy for the government to collect Rs. 5,000 or more per sq. mt. on commercial and 2,000 on residential land. Assuming that 60 per cent of the 20 million sq. mtrs. is sold for residential construction and the balance for commercial use, the sale value of the above land will come to Rs. 6,400 crores Even, if the average development cost for the entire 50 million sq. mts. come to Rs. 500 sq. mt., there would be a huge net surplus of nearly Rs. 4,000 crores.

The above are only indicative, but realistic figures. They are based on the assumption that prices in new Bombay will have to be kept low at least to start with in order to attract builders and home owners in such numbers as to relieve the existing pressure on old Bombay. They also assume that the sudden appearance of a large amount of additional land will bring urban land prices down very sharply. But even after allowing for this, the sheer pressure of demand in Bombay and the great affluence of that city will ensure that the Maharashtra Government can raise upto 40 times the cost of a bridge across the harbour.

It can do this by following the practice indulged in private builders and real estate developers. This is to earmark the areas for development, prepare detailed land use plans, down to individual plots, roads, parks, water, power and sewage lines, announce these and invite bids for the purchase of the plots. It can collect 20 per cent of the total cost as the initial deposit.

The Working Group, therefore, recommends the adoption of a scheme along the above lines for the development of 50 sq. km. of the harbour area, preferably in two urban nodes and it recommends that the proceeds from the sale of land be used to meet the cost of land acquisition provision of infrastructure, construction of a bridge across the harbour and the expansion of other existing modes of transport to fully service the new localities.

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CHAPTER 3

LAND FOR LOW INCOME HOUSING

3.01. Land is needed not only to meet the needs of the city growth but also within each city, to meet the need for shelter, of the economically weaker sections. At the present prices of urban land in the larger cities of the country, half to two-thirds of their population cannot pay the market price even for a plot of the minimum stipulated size. One way to bring down the cost of land is to reduce the minimum size of the plot. In the Madras Sites and Services Projects that were funded by the World Bank, was a mere 35 sq. mt. while in the Bombay Urban Development Project, the minimum plot size was brought down even further to 25 sq. mts. The *Working Group is in broad agreement with this approach, but it would like to stress that there are obvious limits to this process.* In its view 25 sq. mts. is too small a plot to permit families to go in for the stage by stage improvement of their houses as the sites and services schemes envisage. There simply is not enough land.

It therefore recommends that a minimum plot size of 35 sq. mts. be accepted as the norm in large cities, and that efforts should be made to meet the major part of the cost of such plots through cross-subsidisation, from the surplus revenues accruing on the sale of commercial and high-income residential plots.

The following case study of Bangalore is intended to illustrate how cross-subsidisation can be made to work.

3.02 **Bangalore—A case study**

The need for land to house the economically weaker sections is particularly acute in the city of Bangalore, where about 10 lakhs out of the city's 40 lakh people are living in squatter colonies. Of these, around six lakhs are living in some 300 slums (290 according to the comprehensive Development Plan).

A review of current arrangements for low cost housing for the economically weaker sections shows that the Government's efforts are not even touching that fringe of the problem. According to the Bangalore Comprehensive Development Plan published in 1984 or 1985, housing schemes had been taken up in a total of 15 slums with 3616 tenements, while basic amenities had been provided in only 63 slums.

The supply of serviced sites is similarly limited. In 1986, the Bangalore Development Authority released only 2000 sites, but for these it received 46,000 applications.

Even these are not really affordable by the poor. 30 per cent of the sites are of 30′ × 40′ dimension i.e. 108 sq. mts. The normal price of these is Rs. 200 to Rs. 250/- per sq. mt. For the economically weaker sections these, as well as four smaller sizes, from 15′ × 20′ (25 sq. metres) to 25′ × 40′ (90 sq. mt.) are being provided at Rs. 100 per sq. mtre. or thereabouts. Some plots are being given free to slum dwellers who are being evicted from inner city slums. Since the current cost of land plus development is averaging Rs. 90 per sq. mt. only the last category of plots are actually being cross-subsidised.

Even at Rs. 100 per sq. mt. a 108 sq. mt. plot costs Rs. 10,800. Thus the simplest two room pucca dwelling will cost the owner not less than a total of Rs. 20-25,000. If the interest is 10.5 per cent and the payment period 20 years the initial outgo will be Rs. 3100 to Rs. 3800 per year or Rs. 250 to Rs. 320 per month. Assuming, as the World Bank is now doing in its sites and services project in Bombay, that the house owner cannot afford to pay more than 15 per cent of his income towards housing, the above BDA plots can be afforded only by people earning more than Rs. 1700 per month. *This would place BDA 30′ × 40′ plots for the economically weaker sections beyond the reach of roughly 80 per cent of Bangalore's population.*

In view of this, the State Government has only two options: to subsidize the sale of plots to the EWS, or to bring their costs down to a level that many more among them can afford. *The Working Group is of the view that subsidies alone will not solve the problem, which is on such a vast scale that any attempt to subsidise EWS housing can only result in the construction of few houses or houses sites.*

It, therefore, recommends that the State Govt. create far more serviced plots of 35 to 50 sq. mts. size. In the Working Group's view the basic size should be 35 to 50 sq. mt. i.e. 20′ × 30′ and that 40 per cent at least of all plots should be of these sizes. The cost of 950 m^2 plot will be Rs. 5000 at Rs. 100 per sq. mt. It further recommends that another 20 per cent of the plots should be of 35 sq. mt. size and that these should be sold at no more than Rs. 50 per sq. mt. the current development cost. The cost of the land needed for these plots should be borne by the plots distributed for middle income housing i.e. for sale at Rs. 200 per sq. mt. or more.

The Working Group feels that a still better way to meet the cost of land for low-income housing would be to add a mark-up to the price of commercial plots. This is possible where the City Authorities are planning to develop new business districts or

City Centres. In Bangalore, this could be done in the BDA's development of new Satellite towns in Yelahanka and Kengeri.

In the Working Group's view, each of these should be given a new business district with a high floor area ratio (FAR) in order to attract corporate offices to them. The combination of lower land prices and a higher floor area ratio will make the cost of office space far lower than in the two existing City Centres of Bangalore, where land costs as much as Rs. 35,000 to Rs. 40,000 per sq. mts. and the floor area ratio is 1.75 to 2.00.

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CHAPTER 4

FINANCING OF URBAN INFRASTRUCTURE

4.01 As part of the UN's drinking water and sanitation decade, the Government of India had set a national target for 1990, of providing 86.4 per cent of the urban population with piped water supply and 44.7 per cent with safe sanitation mainly through sewerage. These targets represented an increase of 14.1% in the population provided with piped water and 19.6 per cent by safe sanitation.

Table nos. 7 and 8 show that by the end of 1985, the actual achievements were 0.6 per cent for water supply and 3.3 per cent for sanitation. Clearly, the various urban development and municipal authorities are failing to meet the needs of the rising urban population. The main cause is a lack of resources, and to a less extent the inability to find and implement low cost solutions to the water supply and sanitation problems.

The Working Group studied the income and expenditure of selected cities of various sizes. Two facts become immediately apparant (i) with rare exceptions, the revenues from water supply and sanitation do not cover even the annual direct costs of operating the system, let alone overhead costs. (ii) The main cause is the unrealistically low water charges being levied by the City Corporations. Tables 9 & 10 give the salient data for four cities—Delhi, Bangalore, Indore & Jabalpur.

The Table No. 9 shows that except for Bangalore and Jabalpur none of the remaining cities come even close to covering its operating and maintenance costs for water supply and sanitation. In fact, only Bangalore covers the full cost of the two including depreciation and interest payments. Urban growth will thus mean not only increasing capital expenditure but a study rising annual drain of expenditure.

The Working Group strongly recommends that water tariff connection fees and scavanging charges be raised to ensure that the full cost of water supply and sanitation is covered, as is being done by Bangalore.

The Table No. 10 shows that while the capital cost of supplying water is bound to vary widely from city to city, to cover the direct cost of the average realisation should not be allowed to fall below 80 paise per kilolitre, in most circumstances. Most cities including Delhi do not satisfy this requirement.

In addition the realisation in Bangalore suggest that in most cities treated water should not be supplied at an average realisation less than Rs. 1.50 to 2.00 per. k.l., if total costs are to be met. The actual schedules of rates will depend on the proportion of metred to unmetred water supply and the proportion of industrial or commercial users, who have a high capacity to pay. But some nation-wide norms based on average net realisation need to be agreed upon.

4.02 Treatment of City Wastes to Generate Revenue

The revision of water tariff and improvement of dues collection is all the more necessary because this is a precondition to the recycling of fully treated waste water for industrial and non-domestic uses initially, but eventually for all uses as is increasingly being done in the cities of the industrialised countries.

The refuse of treated waste water saves huge amounts of capital by making it unnecessarily to invest in the new water supply systems. Some idea of the sums involved may be had from the fact that Phase III of the Kavery water supply project, of Bangalore is to cost Rs. 280 crores, while the augmentation of water supply to Bombay currently being executed was, estimated in 1985, to cost Rs. 600 crores. In Indore too, the supply of additional water can only be done from the Narmada 90 km. away, which involves lifting the water 2000 ft. at a prodigious cost on power. The capital cost of this project per million litres is even higher than Kaveri Phase III.

The supply of treated water to industry can also generate revenues to meet the cost of future water pipelines and sanitation schemes. The benefits from this are two fold (i) Instead of diverting a part of the original treated water supply to industry, the whole of the water supply can be provided to the domestic sector. This will immediately raise availability. (ii) All of this water can be given primary and secondary treatment and released into existing rivers or reservoirs. But the amount demanded by industry can be immediately given tertiary treatment and supplied to industry. At the optimum rates charged from Industry suggested by the tariff of Bangalore in Table 10, it seems likely that city authority could earn a gross profit/surplus of upto Rs. 3.00 per k.l.

Only one city in India is attempting to implement such a scheme, this is Bangalore, where the Water Supply and Sanitation Board is putting up a 50 million litres a day tertiary treatment plant to supply water to industry. Since there is an acute shortage of water in the city, that has forced the BWSSB to virtually cut off supplies to industry in 1985 and 1986, forcing them to sink large tubewells. This water will have ready buyers. (Bangalore's industrial demand was 62 mld in 1985 and will rise to 131 mld by 2001 A.D. Peak water tariff in Bangalore have been raised to Rs. 8.00 per K. 1. for industry because water from Kaveri Phase III is estimated to cost Rs. 4.63 per K. 1. Against this the BWSSB calculates the cost of tertiary treatment will come to Rs. 1.40 per k. 1. The project will therefore pay for itself and generate a large surplus. Excerpts from the project report for the project are attached as Annexure I of this report.

If the cost of primary and secondary treatment as added to the cost of tertiary treatment, treated water will cost around Rs. 2.00 per k. 1. (see Annexure II). If the average yield or sales to industry is Rs. 6.00 per k. l. and the entire demand of 131 mld in 2001 AD is met by treated water the City will generate Rs. 5.24 lakhs of reinvestible surplus per day or over Rs.19 crores a year, at current prices.

The Working Group would like to stress that similar opportunities exist in most cities in India although the mode of treatment is necessary for whether there is river conveniently nearby into which secondary treated water can be discharged for dilution and oxidation to complete the job of purification (The treated water can be pumped 10 km. upstream of the water works and released or picked up 10 km. down stream and pumped back to the water treatment plant). This is particularly attractive where water treatment plants already exist for the treatment of raw water, by cholorination, slum treatment, rapid sand filtration and so on. As Annexure II shows tertiary treatment is more expensive than primary and secondary treatment put together. It is, therefore, desirable to find ways of helping nature do the tertiary treatment.

The Working Group would like to suggest that in smaller towns and cities where land is available, waste pond stabilisation systems be used to treat water fully before returning it to the primary water reservoir. These require upto 1.5 sq. metre of land per head of population but almost no power and overall cost one fifth of the activated sludge system of sewerage treatment used in large cities.

4.03. Disposal of urban solid wastes

The disposal of urban solid wastes has become a serious problems in all the major and medium sized cities. In the smaller towns there is almost no provision for the systematic removal of urban solid wastes (garbage) or the treatment of liquid effluents (sewarage and sullage).

Other than sewage the main urban wastes are (1) municipal solid wastes and (2) smoke from firewood used as cooking fuel. The Working Group recommends that the Government of India should take urgent steps to set up pilot plants to adapt existing technologies for the gasification of wood and urban wastes to Indian conditions with the objective of (1) converting urban solid wastes into producer gas to generate power and (2) convert firewood into charcoal in modern gasifiers that will capture the producer gas emitted by the process for use in power generation.

4.04 Urban solid waste to Energy Systems

The concept of using urban solid wastes to generate energy is not new. A 330 tonne per day waste ineneration plant was installed in Delhi with a soft loan from DANIDA to generate approximately 3.75 MW of power (installed capacity). This plant which was commissioned in March 1987 has not proved a success because the calorific value of urban solid waste in Delhi is very low, and made it difficult to sustain combustion in the boilers of the above plant. The alternative, of waste gasification offers a possibility of higher efficiencies, particularly if the organic component of the waste is concentrated and dried before use. Several technologies have been developed abroad, and at least one has been in commercial use in Japan since 1981.

Since gasification creates no air pollution problems and like inceneration, does away with the need to put large amounts of potential valuable land under land fuels, *the working group recommends that pilot plants be set up in at least two large cities to try out one or more technologies and modify them to suite the peculiarities of Indian urban solid wastes.*

4.05 Better use of firewood

Despite the growing use of cooking gas, firewood remains the main cooking fuel of the urban poor. Delhi receives at least one train load of firewood every day while in Bangalore in 1982, 700 trucks carrying firewood entered the city every day. The ecological impact of the resulting deforestation does not need to be spelt out. Since, there also seems little likelihood of replacing firewood completely with coal or gas in the foreseeable future, the working group feels that fuel wood plantations around large cities may be necessary to meet growing cooking fuel needs for several decades. Such plantations have already come up around Bangalore, and it is anticipated that the rapid spread of agro-forestery in States like Gujarat, Karnataka, Tamil Nadu, Punjab, Haryana and Western Uttar Pradesh may cease the pressure on natural forests to meet the demand for fuelwood.

However, burning fuelwood in open fires is an extremely inefficient and polluting. Cooking efficiencies almost never exceed 8 per cent and the smoke is responsible for a large part of air pollution to the cities, and the respiratory diseases which afflict women in poor families.

The Working Group feels that if the firewood coming into the cities is first gasified in dual mode gasifier that yields both producer gas and charcoal, it will be possible to meet the cooking fuel needs of the population with charcoal, a smokeless and highly efficient fuel, while trapping the volatile components of fuelwood in the form of a gas that may be used for power generation, or other purposes.

Wood gasification is more than a century old, and there exists a plethora of technologies for this purpose, some of which have been used commercially to provide charcoal and produce gas in other countries before the advent of cheap oil.

Since, most of the firewood now going into large cities pass through key checkpoints such as weighing stations, for payment of octroi, and the railway yards, its collection for gasification and the subsequent distribution of charcoal pose no serious management problem. It may be pointed out that charcoal has twice the calorific value of air-dried wood, and since it burns far more slowly, is vastly more suitable for use as a cooking fuel. An estimate made by the FAO, prior to the 1981 conference on new and renewable sources of energy in Nairobi, showed the charcoal can be six to eight times efficient as firewood when uses in the same cooking stoves.

The Working Group therefore recommends that the Government of India ask the Regional Research Laboratories at Hyderabad to obtain or develop wood gasifier technologies that will yield both charcoal and producer gas.

ANNEXURE I

PROJECT APPRAISAL OF BANGALORE TERTIARY SEWAGE TREATMENT PLANT-50m. l.d.

Industrial needs—2001 AD

Bangalore is one of the largest industrial centres in the country. The present industrial supply is around 64 mld (14 mgd). Apart from the Central Government undertakings, the State Government has also formulated proposals to have an industrial belt around Peenya, Whitefield and Hosur road. The increase in the industrial demand is assessed to increase at an average rate of 9 mld (2 mgd) per year till 1987 and at the rate of 4.5 mld (1 mgd) per year. By 2001 the industrial demand is estimated to be around 131 mld (29 mgd).

Need for conservation of available waters

In the absence of dependable nearby source for augmentation of supplies with the time, any augmentation scheme will be costly and time involved will also be considerable. Also even the timely commissioning of Stage III Scheme will not improve the present per capita supply of 80 to 90 ltrs. and actually the position of human consumption. Hence, it is possible to consider the use of treated sewage effluents to replace fresh water for these two purposes. A third use to which treated sewage can be put is that for gardening and lawn sprinkling. However, all these uses require that the water should meet certain minimum quality standards. The desirable ranges of concentration of treated sewage effluents in such uses are:

Temperature . . .	Preferably below 24° C.
Chlorides . . .	Preferably below .75 mg/l
Hardnes	Below 50 mg/l
pH	Between 6, 8 & 7.0
Organic content . .	As low as possible
Corrosion potential . .	At the lowest possible level
Suspended solids . .	Below 25 mg/l

Depending on the end use, the degree of tertiary treatment to be given to secondary treated sewage effluent varies. It may be in the form of simple chlorination or may be as sophisticated as electrodialysis, reverse osmosis solvent extraction etc. The main aim of this tertiary treatment are (a) removal of suspended and biological matter (b) removal of dissolved organic and inorganic solids and (c) minimization of slimy growths in the treated effluent conveyance and distribution systems.

Scope for utilisation of tertiary effluent by industries in and around K & C valley treatment plan

There is a large belt of industries around Krishnarajapuram and Whitefield area. Also there is a fast expanding industrial belt in Hosur Road. The industrial needs for cooling and boiler can be met by supplying tertiarily treated water to these areas. For this a separate pumping main has to be laid from K & C Valley treatment plant to pump water to these areas. Per capita supply will go down to 50-60 ltr. by 2001. This situation calls for conservation of available waters with all possible means. The underground water potential will have to be harnessed wherever possible the re-use of waste water for industrial and gardening purposes will have to be adopted to conserve the drinking water to the maximum extent so that the prime needs of domestic consumers are met at a satisfactory level.

Conservation of water by reuse of waste water for industrial and gardening

Today's conventional sewage treatment plants are capable of providing effluents of a quality better than that of many polluted natural bodies of water. Such treated effluents can be safely let out into these bodies and can also be considered as reliable sources of water both in terms of quality and quantity. This proposition becomes quite attractive if (a) the raw water source is far away from the point of consumption thereby necessitating provision of a costly collection and conveyance system and (b) there are industries in the vicinity of the sewage treatment plant which can conveniently use adequately the treated sewage effluents for certain purposes, thus reducing fresh water consumption.

Industrial use of water can be classified as (a) process (b) Boiler feed (c) Air conditioning (d) Cooling (e) Sanitary (f) Fire protection (g) Lawn, sprinklings, gardening etc. Generally the demand of water for cooling and boiler feed is about half of all other demands put together.

Out of a total flow of 218 mld of sewage into the treatment plant about 25 to 40 mld of this will be from Industrial source. As such there is scope for setting up a 50 mld sewage treatment plant for supplying to the various industries located. This also ensures a continuous and un-interrupted supplies without any cuts imposed.

The proposal

The sewage treatment plant at K & C Valley is designed to produce 163 mld of treated sewage. This

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volume may increase to 218 mld in future. The quality of treated sewage effluent will meet the IS 4764-1973 standared i.e. suspended solids of 30 mg/l and 5 day 20 C BOD of 20 mg/l. This effluent can be treated further by tertiary methods viz., prechlorination, coagulation settling, filteration and past chlorination and rendered fit for gardening, lawn sprinkling etc. The industries may also use this effluent for cooling, boiler feed etc., after giving it necessary additional treatment.

It is proposed to have a 50 mld capacity tertiary treatment units. Hence the flow of waste water from Secondary treatment units to tertiary treatment units will be uniform throughout the day.

It is proposed to construct influent pump house, flow distribution box, prechlorination tank, Alum dosage tank, flocculation tank, clarifiers, rapid sand filters, chemical house, pure water tank and effluent pump house.

Influent pump house

The tertiary treatment units are proposed at a higher elevation to that to secondary treated effluent channel. Hence, it is necessary to lift the waste water from secondary effluent channel to tertiary treatment units thereby necessitating the construction of influent pump house. The secondary treated effluent will be taken to wet well through 700 mm dia CI pipe which is laid in a slope of 1 in 300. The pump house is provided with 4 Nos. of pumps of capacity to lift 300 lits/sec. against a head of 15 m. From the influent pump house, waste water will be conveyed to the distribution box through 700 mm dia CI raising main.

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Flow distribution box

The waste water pumped to this unit is made to flow over a rectangular weir into 3 equal sections which acts as prechlorination tank. Waste water before entering the flow distribution box will flow into the mixing channel where arrangement for parshal flume is made. At the point of the flume, chlorine will be injected into waste water for the purpose of pre-chlorination.

Pre-chlorination tank

Chlorination of the waste water is done in this tank before sedimentation. 25 minutes contact period has been provided while designing the tank. The pre-chlorination is required as it (1) affects reduction in taste and odour of waste water (2) reduces barterial load on filters (3) improves coagulation (4) prevents the growth of algae in sedimentation tank (5) prevents the purification of sludge in settling basin.

Alum dosage tank

From the prechlorination tank, the waste water enters Alum dosage tank where coagulant (alum) will be mixed with the waste water. For thorough mixing, the mixture of waste water and coagulant will be made to pass through the channel in which fluming is done and also vertical baffles will be fixed to both the sides of the channel to create violent agitation.

Flocculation tank

From the Alum dosage tank, the Waste Water enters flocculation tank where flow formation takes place. Flocculation is promoted by, gentle stirring with slow mixing paddles and the tanks are fitted with mechanical devices to affect control on agitation. A detention period of 30 mins. has been considered for the design.

Clarifiers

The waste water from the flocculation tank enters the clarifier where flocs will settle down at the bottom of the tank. Each clarifier has been designed to have a over flow rate of 40 m^3/m^2/day and a detention period of 120 mins. The settled sludge will be scraped at the bottom of the clarifiers with mechanical scraper which will be mounted on a central shaft connected to gear box and a motor at the top level. The settled sludge will be drained into the wet will of sludge pump house under hydrostatic pressure. Sludge from sludge pump house will be spread on sludge drying beds.

Rapid sand filters

There will be some fine flocs and other suspended matter in the effluent of the clarifiers. To remove them and to reduce the bacterial content of the waste water, the waste water is passed through rapid sand filters. For design purpose, the rate of filteration is taken as 100 lts/min/m^2. For cleaning and washing of filters, arrangement for backwashing is made.

Chemical house

Adjacent to the filter house, a chemical house will be constructed to store Alum and Chlorine cylinders. Arrangement for housing the chlorinators and also device for making alum solution is made.

Pure water tank

The effluent from rapid sand filters will be taken into the Pure Water Tank of capacity 10 mld. In the Pure Water Tank arrangement for past chlorination of tertiary treated waste water is made.

Effluent pump house

By the side of Pure Water Tank, effluent pumphouse will be provided to pump the treated water to the nearby industries. For pumping water, the following lines will be laid to be used exclusively for pumping this water.

(1) K & C Valley treatment plant to whitefield area-distance 17 kms. and 700 mm line is proposed.

(2) K & C Valley treatment plant to Electronic City in Hosur Road—distance 17 kms.—700 mm line is proposed.

Cost Estimates

The estimated cost will be Rs. 900.00 lakhs as per details given in Annexure I. Main breakup costs are:

		Rs. in lakhs
1.	Tertiary treatment unit . . .	160.00
2.	Pumping main	480.00
3.	Pumping units	80.00
4.	Escalation, T & P. and establishment charges	180.00
		900.00

The secondary treatment plant is expected to be commissioned by 1986-87 and the tertiary treatment can be taken up for execution during 1987-88 and completed in 3 years i.e. by 1989-90.

Financial feasibility and forecosts

The flow of funds that will be required for setting up of the tertiary treatment unit of 50 mld capacity are:

1987-88	200 lakhs
1988-89	500 lakhs
1989-90	200 lakhs
	900 lakhs

The cost of production of this water will be Rs. 1.40 per 1000 ltrs. as per details given at Annexure I. It is proposed to have 3 years of moratoriam period and the loan of 9 crores is made available in instalments as per requirement of funds. The loan is assumed to carry an interest of 9% to be paid in 20 years.

The water sold is expected to generate around 300 lakhs* per year and the plant is expected to be a self sustaining unit and all operation and maintenance cost including that of secondary treatment is expected to be met.

Considering that the filtered water which is sold at a rate of Rs. 4.00 per 1000 ltrs. sold to the industrial consumers, it will be very attractive proposal for the industrial users if tertiary treated water is sold at Rs. 1.40 per 1000 ltrs. on the average.

Conclusions

There is a great need to conserve the available filtered water supplied to the City as the Commissioning of III Stage Scheme is also not going to improve the per capita supply of 80-90 ltrs. even to the city. Reuse of water for industrial and gardening purpose will contribute in conserving the available filtered water for drinking purpose. There is a scope for setting up of a 50 mld. tertiary treatment unit at K & C Valley treatment plan and supply it to the industrial consumers in industrial belts located in Krishnarajapuram, Whitefield and Hosur Road areas.

The tertiary treatment as proposed estimated to cost Rs. 9.00 crores including the required distribution and pumping. The Project can be taken up for execution in 1987-88 and completed in three years.

The Project can generate funds for repayments of loans fully in 20 years and to function as a self sustaining unit.

ANNEXURE I

COST ESTIMATES

A detailed estimate is prepared based on S.R. of 1983-84 for all Civil Works and market rates for materials and mechanical equipment. The abstract estimate is given below:

1.	Civil works	80,00,000.00
2.	Piping & channels . . .	20,00,000.00
3.	Mechanical equipments . .	30,00,000.00
4.	Electrical & Instrumentation . .	25,00,000.00
5.	Providing internal roads . .	3,00,000.00
6.	Providing lab and model room .	2,00,000.00
7.	Providing distribution system .	4,80,00,000.00
8.	Pumping units	80,00,000.00
9.	Escalation of prices @ 20% .	1,44,00,000.00
10.	Miscellaneous, unforeseen charges establishment charges @ 5% .	36,00,000.00
	Total .	9,00,00,000.00

(Rupees Nine Crores only)

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*BWSSB has calculated this on the basis of charging Rs. 1.40 per k.l. This would be most undesirable as it would make water of a very high degree of purity supplied to industry cheap than water supplied to domestic users.

Statistical Tables

TABLE 1

MAXIMUM LAND PRICES IN SOME MAJOR CITIES AND RATE OF ESCALATION

(Price per sq. meter)

City	Year	Residential	Industrial	Commercial
1	2	3	4	5
1. Bombay	1980	11,450	17,175	17,175
	1983	15,000	22,500	22,500
Rate of increase		10.2%	10.2%	10.2%
2. Delhi	1981	1,500	1,062	..
	1982	4,500	2,509	13,000
Rate of increase		100%	55%	..
3. Ahmedabad	1980	500	7	957
	1983	800	35	1,496
Rate of increase		26%	130%	18.8%
4. Hyderabad	1975	179	96	357
	1983	238	239	952
Rate of increase		3.9%	12%	14%

TABLE 2

LAND PRICES AT CENTRE, PERIPHERY AND ADJOINING RURAL AREAS

City	Year	Central area	Periphery area	Rural area
1	2	3	4	5
1. Delhi	1985	4,500—7,200 (residential area)	2,400—5,400	1,500—2,000
2. Patna	1986	240	25	25

TABLE 3

PRICES OF AUCTIONED RESIDENTIAL PLOTS IN 8 DELHI COLONIES 1981-85

(Price Rs./Sq. mtr.)

Area	Price (1981)	Price (1985)	Escalation
Vikas Puri	656	1233	17%
Yamuna Vihar	447	1209	29%
Parshant Vihar	986	1317	7.2%
Kanak Puri	1195	1366	3.2%
Paschim Puri	1005	1328	6.5%
Pitam Pura	877	1453	13.2%
Safdarjang	3128	3080	..
Shalimar Bagh	1235	1716	8.2%
Average .	1066	1587	10.2%
Average escalation excluding Safdarjang			12%

TABLE 4

IMPLEMENTATION OF URBAN LAND (CEILING & REGULATION) ACT, 1976

Information in respect of selected urban agglomerations

(Area in Hectares)

Particulars	Delhi	Madras	Ahmedabad	Hyderabad	Indore	Calcutta
Land declared surplus under the Act .	322.54*	126.12	706.11	2930.00	296.36	91.90
Land earmarked for acquisition . .	41.09	126.12	517.57	1160.30	296.36	N.A.
Land under litigation	33.37	N.A.	91.11	856.50	197.48	N.A.
Land under encroachment .	N.A.	N.A.	100.43	..	..	N.A.
Land actually taken possession of . .	2.00	71.52	58.53	440.40	98.88	34.67
Land allotted:						
(i) Residential use . . .	N.A.	10.00	2.79	283.40	..	4.24
(ii) Non-residential use (Institutional use)	N.A.	2.52	20.85	156.00	..	5.41
(iii) Other uses	N.A.	11.57	..	1.00	..	0.4
Total .	2.00	24.39	23.64	440.40	..	10.00
Land acquired but not allotted (Lying vacant)	Nil	47.13	34.89	Nil	98.88	24.5

*This figure is at variance with the one quarter for Delhi U.T. in Table 5.

TABLE 5

PROGRESS OF IMPLEMENTATION OF THE URBAN LAND (CEILING & REGULATION) ACT, 1976 IN THE STATES AND UNION TERRITORIES

Name of State/ Union Territory	No. of statements of excess vacant land received	No. of statements scrutinised	No. of statements finally disposed	(In hectares) Estimate of excess vacant land after scrutiny	Extent of vacant land acquired & vested with State Govt.	Extent of excess vacant land in respect of which physical possession has been obtained (Out of Col. 6)	Average of land used by the State Govt. for construction of houses
1	2	3	4	5	6	7	8
Andhra Pradesh	25239	17511	7199	4670.50	1522.51	452.78	101.26
Assam	2145	1522	356	37.42	18.99	..	..
Bihar	1087	245	200	198.69	20.46	15.11	..
Gujarat	41518	39004	13048	32513.00	218.00	124.00	22.86
Karnataka*	32414	25581	18342	2692.92*	1007.12	499.21	163.33
Madhya Pradesh	10871	9212	3775	6555.53	1307.54	603.86	..
Maharashtra	71776	45457	21167	34213.77	4494.69	877.07	332.60
Orissa	812	812	262	28.34	58.00	..	..
Punjab	5996	3451	2700	783.10	..	..	..
Rajasthan	9676	7710	2528	26906.72	830.75	21.48	..
Uttar Pradesh	119745	107792	70061	51518.68	4872.58	1238.61	
West Bengal	30475	10854	1138	5007.00	112.24	19.63	0.80
Union Territory							..
Chandigarh	198	95	61	10.04	..	..	..
Delhi Admn.	8540	6113	3927	247.13	25.12	1.99	..
Pondicherry	1221	841	615	168.46	5.18	0.06	..
Cantonment Areas	3565	3484	2998	604.86	95.46	0.03	..
Total .	365278	279864	148377	166192.17	14588.64	3851.83	620.85

*This figure is totally at variance with the furnished by the Department of Housing and Urban Development to the State Economic Planning Council, which is 31286 hectres in five cities—Bangalore, Mangalore, Mysore, Belgaum and Hubli-Dharwad. Other estimates may also be. . . . .

TABLE 6

D.D.A's SALE PRICE OF LAND FOR L.I.G. AND M.I.G. HOUSING DURING 15-4-1985 TO 31-3-1987

Sl. No.	Name of the Scheme	L.I.G. Per Sq. Mtr.	M.I.G. Per sq. Mtr.	Allotment of alternative plots measuring upto 167 sq. Mtr. (Rate per sq. mtr.)
1.	Safdarjung	Rs. 423.00	Rs. 474.00	Rs. 474.00
2.	East of Kailash	Rs. 423.00	Rs. 474.00	Rs. 474.00
3.	Masjid Moth	Rs. 423.00	Rs. 474.00	Rs. 474.00
4.	Malviya Nagar (Saket)	Rs. 421.00	Rs. 472.00	Rs. 472.00
5.	Pitampura	Rs. 368.00	Rs. 419.00	Rs. 419.00
6.	Shalimar Bagh	Rs. 368.00	Rs. 419.00	Rs. 419.00
7.	Vikas Puri	Rs. 368.00	Rs. 419.00	Rs. 419.00
8.	Pankha road	Rs. 368.00	Rs. 419.00	Rs. 419.00
9.	Paschim Puri	Rs. 368.00	Rs. 419.00	Rs. 419.00
10.	Haider Puri (Prashant Vihar)	Rs. 368.00	Rs. 419.00	Rs. 419.00
11.	Naraina	Rs. 368.00	Rs. 419.00	Rs. 419.00
12.	Jhilmil—Phase I	Rs. 316.00	Rs. 367.00	Rs. 367.00
13.	Jhilmil—Phase II	Rs. 316.00	Rs. 367.00	Rs. 367.00
14.	Ghonda (Yamuna Vihar)	Rs. 316.00	Rs. 367.00	Rs. 367.00

Source: Delhi Development Authority.

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TABLE 7

URBAN POPULATION COVERED BY PIPED WATER SUPPLY 1981 & 1985

State/UT	Urban Water Supply (Population & Coverage in '000)						Diff. 81—85 +/— %
	1981 (Census)			1985			
	Urban population	Population coverage	%	Urban population	Population coverage	%	
1. Andhra Pradesh	12488	6910	55.4	13638	7105	52.1	—3.3
2. Assam	2047	530	25.9	2347	880	37.5	+11.6
3. Bihar	8719	5530	63.4	9669	5748	59.5	—3.9
4. Gujarat	10602	9430	89.0	11602	9647	83.2	—5.1
5. Haryana	2827	1130	40.0	3097	2140	69.1	+29.1
6. Himachal Pradesh	326	326	100.0	366	326	89.1	—10.9
7. Jammu & Kashmir	1260	1230	97.6	1420	1230	86.6	—11.0
8. Karnataka	10730	9530	88.8	11740	9530	81.2	—7.6
9. Kerala	4771	2850	59.8	5271	3400	64.5	+4.7
10. Madhya Pradesh	10586	7100	67.1	11896	9479	79.7	+12.6
11. Maharashtra	21993	20870	94.9	24164	21033	87.1	—7.8
12. Manipur	375	260	69.3	505	260	51.5	—17.8
13. Meghalaya	241	60	24.9	271	60	22.1	—2.8
14. Nagaland	120	70	58.3	150	70	46.7	—11.6
15. Orissa	3110	1070	34.4	3480	1326	38.1	+3.7
16. Punjab	4648	3050	65.6	5078	3614	71.2	+5.6
17. Rajasthan	7210	4060	56.4	7250	4060	56.0	—0.3
18. Sikkim	52	24	46.2	82	73	89.0	+42.8
19. Tamil Nadu	15952	12900	80.9	17302	14490	83.8	+2.9
20. Tripura	226	110	48.7	266	137	51.5	+2.8
21. Uttar Pradesh	19899	13990	70.3	21329	14950	70.1	—0.2
22. West Bengal	14447	8670	60.0	15167	9654	63.7	+3.7
23. A. & N. Islands	50	50	100.0	60	60	100.0	..
24. Arunachal Pradesh	42	20	47.6	52	46	88.5	+40.9
25. Chandigarh	510	480	94.1	563	563	100.0	+5.9
26. Delhi	5768	4700	81 5	6818	6690	98.1	+16.6
27. Dadra & Nagar Haveli	7	..	..	17	13	76.5	+76.5
28. Goa, Daman & Diu	352	330	93.8	452	370	81.9	—11.9
29. Lakshadweep	19	..	..	21	..	..	..
30. Mizoram	122	10	8.2	132	10	7.6	—0.6
31. Pondicherry	316	180	57.0	346	264	76.3	+19.3
TOTAL INDIA	159728	115470	72.3	174551	127229	72.9	+0.6

Source: Proceedings of Mid Term Review of Water Decade Programme, Ministry of Urban Development.

TABLE 8

URBAN POPULATION COVERED BY SANITATION (SEWERAGE) SYSTEM

State/UT	Urban Sanitation (Population & Coverage in 000's)						
	1981 (Census)			1985			Diff. 81—85 +/— %
	Urban population	Population coverage	%	Urban population	Population coverage	%	
1. Andhra Pradesh	12488	1400	11.2	13638	1484	10.9	— 0.3
2. Assam	2047	300	14.7	2347	369	15.7	+ 1.0
3. Bihar	8719	1740	20.0	9669	2213	22.9	+ 2.9
4. Gujarat	10602	4370	41 2	11602	4408	38.0	— 3.8
5. Haryana	2827	350	12.4	3097	879	28.4	+16.0
6. Himachal Pradesh	326	50	15.4	366	50	13.7	— 1.7
7. Jammu & Kashmir	1260	100	8.0	1420	110	7.7	— 0.3
8. Karnataka	10730	3620	33.7	11740	4506	38.4	+ 4.6
9. Kerala	4771	300	6.3	5271	1485	28.2	+21.9
10. Madhya Pradesh	10586	540	5.1	11896	929	7.8	+ 2.0
11. Maharashtra	21993	8420	38.3	24164	9602	39.8	+ 1.5
12. Manipur	375	..	..	505	4	0.8	+ 0.8
13. Meghalaya	241	..	..	271	..	..	..
14. Nagaland	120	..	..	150	..	..	..
15. Orissa	3110	290	9.3	3480	328	9.5	+ 0.2
16. Punjab	4648	1640	35.3	5078	2461	48.5	+13.2
17. Rajasthan	7210	300	4.2	7250	695	9.6	+5.4
18. Sikkim	52	..	..	82	27	32.9	+32.9
19. Tamil Nadu	15952	7400	46.4	17302	8217	47.5	+ 1.10
20. Tripura	226	10	4.4	266	35	13.2	+ 8.8
21. Uttar Pradesh	19899	2560	12.9	21329	2990	14.1	+ 1.2
22. West Bengal	14417	2240	15.5	15167	2948	19.5	+ 4.0
23. A. & N. Islands	50	20	40.0	60	33	55.0	+15.0
24. Arunachal Pradesh	42	20	47.6	52	20	38.5	— 9.1
25. Chandigarh	510	480	94.1	563	563	100.0	+ 5.9
26. Delhi	5768	3700	64.2	6818	5000	73.4	+ 1.2
27. Dadra & Nagar Haveli	7	..	..	17	..	..	..
28. Goa, Daman & Diu	352	60	17.1	452	60	13.3	— 3.8
29. Lakshadweep	19	..	..	21	..	..	..
30. Mizoram	122	..	..	132	2	1.5	+ 1.5
31. Pondicherry	316	120	38.0	346	138	39.9	+ 1.9
TOTAL INDIA	159728	40030	25.1	174551	49556	28.4	+3.3

Source: Proceedings of Mid Term Review of Water Decade Programme, Ministry of Urban Development.

TABLE 9

REVENUE AND DIRECT COST OF WATER SUPPLY AND SANITATION

City	Year	Recovery (Rs. in 00,000)	Direct cost (Rs. in 00,000)	Surplus/deficit
New Delhi	1984-85	2346	7196	—4850
Indore	1985-86 (probably)	96	728	—632
Jabalpur	1985-86 (probably)	201	165	+36
Bhopal	1985-86	54	305	—251
Ujjain	1985-86	34	224	—190
Sagar	1985-86	9	63	—54
Bangalore	1980-81	1502	709	+793

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TABLE 10

PEAK WATER TARIFFS FOR VARIOUS CITIES (maximum rates) and realisation kl.

City	Year	Domestic (per kl.)	Non-dom/Industrial (per kl.)	Net realisation/per kl (Rs.)
New Delhi	1985	..	..	0.31
Indore	..	0.35	0.70	0.34
Jabalpur	..	0.80	2.00	0.83
Bhopal	.	3.80	2.2/1.75	0.19
Ujjain	..	0.33	2.2/1.75	0.16
Sagar	..	0.35	0.50/0.40	0.30
Bangalore	1984-85	1.75	5.00	1.58

REPORT OF THE WORKING GROUP ON INSTITUTIONAL FRAMEWORK AND INTERAGENCY INTERACTION IN URBAN SETTLEMENTS

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PREFACE

The National Commission on Urbanisation constituted the Working Group on "Institutional Framework and Inter-agency Interaction in Metropolitan Cities" in October, 1986. The scope was later expanded to cover all urban settlements. The terms of reference of the Working Group are:—

(a) *Review* state of the art of institutional framework with reference to interaction and coordination of certain city management agencies;

(b) *Examine* legislative framework affecting city management and inter-agency functioning;

(c) *Identify* control and coordination mechanism to coordinate the activities of Union Government agencies such as Railways, P & T etc.;

(d) *Suggest* alternative institutional framework with its composition, function and legislative support necessary to establish a modified or new institutional framework;

(e) *Examine* any other issues having bearing on institutional framework for metropolitan city management.

2. The Working Group consisted of:—

1. Prof. Mohit Bhatacharya, Professor Emeritus, Political Science, University of Calcutta.
2. Shri P.S.A. Sundaram, Administrator, Maharashtra Housing & Urban Dev. Authority.
3. Shri K. Dharmaraja, Secretary, Urban Development, Govt. of Tamil Nadu.
4. Shri M.K. Moitra. Secretary, Metropolitan Dev. Department, Govt. of West Bengal, *Convenor.*

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3. Members of the Working Group had a number of meetings in Delhi. It came out clearly during deliberations that the institutional response to urbanisation has not been uniform. It has been a product of a combination of situations, political, socio-economic and historical. Every urban settlement has its characteristic logic of development which reacts differently to the needs of management. The result has been a bewildering array of institutional set-up with a wide variety of tasks and functions. While the reality of such a situation was accepted, the Working Group noted with concern the rapid growth of urban management institutions, often with overlapping jurisdiction. The Group recognised the need for acknowledging the primacy of municipalities in the task of urban management and achieving both vertical and horizontal integration. While acknowledging that divergence of institutional functions was inevitable, the Group nevertheless felt the need for achieving a degree of basic uniformity in the institutional structure. Similarly, the Group acknowledged that institutional reform was necessary to achieve this aim. While "institutional overcrowding" was to be avoided, it was necessary to rearrange or reform existing organisation. In some cases, this would involve introduction of new institutions for achieving better integration and interaction.

4. The members of the Working Group would like to place on record their thanks to the National Commission on Urbanisation, particularly, to Shri Naresh Narad, Member-Secretary, for all the assistance rendered. They would also like to thank Mr. B.R. Dhiman, the Under Secretary and other members of the secretarial staff.

M. K. MOITRA
Convenor.

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CHAPTER I

INTRODUCTION

1.1 Discussions on institutional framework in the context of urbanisation and urban development in India have to take into account the process of evolution of urban institutions, the constitutionally designed institutional pattern and the present public policy and action to deal with the urban situation in the country.

1.2 History of urban institutions in India during the British period has limited relevance for our purposes. Imperial rule had its own logic of creating institutions. The types of urban institutions that could be traced to British rule had been designed not from the standpoint of an overall strategy to deal rationally with problems of urbanisation. Lord Ripon's famous resolution of 1882 was prompted by the policy of political accommodation of the emerging educated and professional class that started demanding political rights and a greater share in public administration. The official position of strengthening municipal institutions and associations of local people with local administration was reiterated in the report of the Decentralisation Commission of 1909.

1.3 The process of democratisation of municipal government really started after the Montague-Chelmsford reform of 1919. The reform has ushered in a new era of elected municipal councils headed by elected chairman. Under the new system of Dyarchey, the popular minister of the Provincial Governments sought to bring about democratisation of local govt. institutions under their charge. A remarkable feature of the Act of 1919 was the inclusion of separate schedule of local taxes which could be levied by local bodies with approval of the Provincial Governments. Octroi was included in this schedule. In addition terminal taxes on goods carried into or exported from a local area could be levied by all local bodies that had been levying Octroi before July 1917. This power was taken away by the Govt. of India Act 1935 and later by Article 269 of the Constitution of India. Though the right of States and local bodies to levy terminal taxes has been selectively retained under Article 277 of the Constitution, where such taxes were being levied prior to the commencement of the Constitution, even in those limited cases the rates have been frozen.

1.4 Article 40 of the Constitution directs the States to take steps "to organise village panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self govt." Unfortunately the municipal institutions have not received similar treatment and attention. Entry 5 in last II is an omnious entry. It reads: "Local Government, that is to say, the constitution and power of municipal corporations, improvement trusts, district boards, mining settlement authorities and other local authorities for the purpose of local self government or village administration". This entry does not take into consideration the special character of local bodies. To talk of 'mining settlement authorities' and 'improvement trusts' as 'local government' is doing violence to the term itself.

1.5 The municipal institutions in post independence India received scant attention from most State Governments. Legal and organisational obsolesence, financial poverty and managerial and political incompetence have in most cases rendered the municipal institutions virtually redundant. A major cause of urban chaos in India can thus be traced directly to our continued neglect and gradual atrophy of the nodal urban institution the municipal government.

1.6 The municipal corporations date back to the earliest attempts to set up exclusive type of 'enclave' local government to serve the interests of the then ruling class in the three presidency towns of Bombay, Calcutta and Madras. The governmental design was made bureaucratic. After independence, the Corporation form of city government spread to a number of large cities. But the basically bureaucratic design has remained unaltered. The cabinet type Mayor-in-Council system introduced in Calcutta & Howrah marks a break through replacing the fragmented system of the whole Corporation, the Standing Committee and the Municipal Commissioner.

1.7 The third type of urban institutions with its roots in British India, is the cantonment, governed by a Central act, (the Cantonment Boards Act, 1924). The cantonment boards are for all practical purposes, municipal institutions. But for historical reasons, these continue to be regulated by the Union Government in the interest of the armed forces, although the cantonments at most places are virtually nothing but civil areas with a large civil population. Entry 3 in list I of the Seventh Schedule reads thus: "Delimitation of cantonment areas, local self government in such areas, the constitution and powers within such area of cantonment authorities and the regulation of house accommodation (including the control of rents) in such areas."

1.8 According to this provision, local self government in cantonment areas is outside the jurisdiction of the State Governments. Many of our large cities like Kanpur, Poona, Delhi and other have cantonment boards. In any strategy of urban planning and development for these areas, close collaboration of these boards is essential. Yet, these have not been very responsive to wider planning needs.

1.9 A fourth type of non elective institution is the City/Urban Improve Trust or Development Authority. The Improvement Trusts were originally conceived by the British as special purpose area development authorities. Most of the large cities Bombay, Delhi, Calcutta had their improvement trusts. The formation of urban Development Authorities were a 1970 phenomenon, ushered in with the objective of separating planning and development activities from urban municipal institution. These institutions were established on the logic that elective municipal institutions were too weak to undertake comprehensive planning and development tasks.

1.10 The Rural Urban Relationship Committee (RURC) discussed the institutional issue at length. The RURC advocated general strengthening of municipal institutions to increase their administrative capacities for more efficient management of local Govt. functions. These views were reiterated in Task Force on Management of Urban Development set up by the Planning Commission (Sept. 1983). For harmonious development of rural and urban areas, the committee suggested a district level statutory planning and development authority with representation from both rural and urban local bodies. Within the broad framework of development guidelines to be prepared by the statutory authority, the individual local bodies would be undertaking respective local development activities. For less urbanised district the Zilla Parishad was to assume the coordinating role. In regard to metropolitan complexes, the RURC suggested two alternatives:—

(a) placing the entire city regions under a single municipal authority; or

(b) creation of a special statutory authority with representation from various local, regional and national interests to undertake strategic planning for entire region leaving detailed local level actions to local bodies.

The report of the RURC marked the first official attempt at the national level to consider the issue of institutional development to grapple with the urban question.

1.11 The report of the Task Force in Planning and Development of small and medium towns and cities in 1977 sought to examine the question of urban dispersal, away from metro cities and attendent issues of institutional support for such a dispersal policy. In tune with the RURC, the Task Force laid emphasis on the municipal institutions and suggested ways and means to strengthen them. Beyond this, the Report recommended action in three levels, the State level, the district level and the local area level. At the State level a Town and Country Planning Board was suggested as the physical planning wing of the State Planning Commission. Within broader regional framework, specific small and medium towns were to be identified for planning and development in harmony with their outlying areas. At the district or area level, a suitable statutory authority was recommended to prepare plans and programmes on the basis of a settlement plan, integration rural and urban areas.

1.12 Another round of discussions on urban problems generally and urban institutions particularly took place in course of finalisation of the 7th plan. The four task forces appointed by the Planning Commission dealt respectively with (i) Planning (ii) Financing (iii) Management of Urban Development & (iv) Shelter for Urban Poor & Slum improvement. Of these, the third one is of special significance for urban institution building. The tasks force acknowledged the crucial role of municipal institutions. The Urban Development Authorities would be justified only in metropolitan and pre-metropolitan situations characterised by the existence of many municipalities in an integrated space. Statutory and special purpose functional bodies were also discouraged.

1.13 The institutional prescription by committees and commissions and successive five year plans have generally been in favour of strengthening of municipal institutions as the basic unit of urban management. But, actual institutional development in urban India has been at variance with such prescriptives. Development authorities have been set up in most of the large cities. For functional administration, special purpose authorities like water supply and sewerage and drainage boards have been established in a number of states either in the State level or at the level of city region. A system of dual management has thus been fostered in our major cities and urban complexes under which development functions have been entrusted to the urban development authority or the improvement trust, while the maintenance function has been left to the care of municipal bodies. The languishing municipal institutions have meant a continuous disfunction between local needs and aspirations and the actual process of urban development. The resultant technocratic approach to urban development has tended to insulate urban planning from the local popular will.

1.14 Urbanisation in India has been posing challenges to administrators at all levels. Institutional refashioning or strengthening has to be considered both horizontally and vertically. Municipal authorities' problems of distant governance arise even in case of those needs of citizen which are within municipal functions. There is therefore a need for institutional adjustments not only in horizontal and vertical planes but also between different points of the decision action sequence in the horizontal plane. Urban federalism is perhaps the inevitable outcome of this phenomenon. Division of large corporations into boroughs or districts is an example of attempts towards urban Federalism. The division is not merely administrative. In many cases statutory allocation of power and formation of borough level institutions has formalised this process. In other cases local level informal managements system have come into existence.

In our report we have examined the urbanisation process, the institutional response, its shortcomings and problems of harmonous interaction. Finally in our recommendations we have stressed on the needs for vertical and horizontal integration.

CHAPTER II

URBANISATION PROCESS

2.1 Institutional patterns at any level can be viewed from both managerial and political standpoints. The distinctive nature of managerial view is its predilection from 'efficiency'. By contrast, the political perspective looks at institutions as devices for structuring 'power'. The history of evolution of institutions of urban management in India since the British days shows unmistakable signs of accommodation of both points of view.

2.2 As education was spreading and a new urban elite class was steadily emerging, the new situation called for political accommodation of the new elite. The Ripon Resolution reflected the spirit of the time, as it preferred 'political education' to 'efficiency' in its emphasis on grass roots institutions. By extending franchise and making the post of municipal chairman elective, the Mongague Chelmsford Report sought to continue with the politics of accommodation.

2.3 While the process of democratization went apace in the district and small towns, the governments of the Presidency Towns of Calcutta, Bombay and Madras being the seats of imperial power, remained bastions of bureaucratic power under the firm control of the government appointed Chief Executive belonging to the Indian Civil Service.

2.4 While municipal democracy struggled hard for survival under conditions of acute financial scarcity and lack of qualified personnel, the Improvement Trust had come up at many places to take care of selective development of the areas inhabited by the white population and the urban elite. The disparities between the native part and the 'Civil Lines' were so well described by Nehru in his *Autobiography.**

> "The city part is always grossly neglected, and of course, the poor parts of the city are almost ignored. It has few good roads, and most of the narrow lanes are ill-lit and have no proper drainage or sanitation system. It puts up with all these disabilities patiently and seldom complains; and when it does complain, nothing much happens. Nearly all the Big Noises and Little Noises live in the Civil Lines."

2.5 This is clear evidence of 'class' cities and towns, carefully fostered by institutions like the municipal corporation in the presidency Towns and the Improvement Trusts in a number of towns such as Bombay (1898), Calcutta (1911), Lucknow and Kanpur (1919), Allahabad (1920), Nagpur (1937) and so on.

2.6 Some of these Trusts were wound up or merged later with the local municipal body. For instance, the newly created municipal corporation in the KAVAL towns of Uttar Pradesh in 1959 absorbed the tasks of the erstwhile improvement trusts and the development board. The Delhi Improvement Trust was promoted to the Delhi Development Authority in 1957. In Bombay, the Improvement Trust was merged in the City Corporation as early as in 1933.

2.7 In post-independence India, the initial thrust was toward revitalization of municipal institutions. Under Articles 263 of the Constitution, the Central Council of Local Self-Govt. was constituted as a national forum to discuss the developmental problems of local bodies. It was in the Third Five Year Plan that for the first time urbanisation was recognised as an important aspect of economic and social development. Hence, recommendations were made for planned efforts to upgrade civic facilities in towns and cities. Since then, the role of municipal bodies in urban development has been emphasized in all successive plans. But, for a variety of reasons—political, technical and financial—the municipal bodies have in most places been languishing. Politically decentralisation of power and resources at the municipal level has not always been favoured. Technically, the municipal bodies have remained ill-equipped to cope with the myriad problems of urbanisation and urban development. Financially, these bodies have found it difficult to make both ends meet.

2.8 On grounds of inefficiency, the municipal authorities in many cities and towns have been superseded by the State Governments and for years together, the municipal body has been left to the care of the administrator.

2.9 While the municipal institution could not be abolished, the establishment of competitive institutions has been a regular feature in most urban places. Area based or State wide organisations had thus come up to undertake such functions as housing, water supply and sewerage, slum clearance and urban development.

2.10 Alongside proliferation of institutions, one has to take note of a variety of urban settlements that have come up in the wake of industrialisation and economic developments. These have been the new growths like small town and agro-industrial centres. Institutional and administrative centres have been freshly created at many places. Owing to planned industrialisation policy, towns have come up around industrial centres and major irrigation and power projects.

2.11 Urban settlements since independence may be grouped into following four major categories:—

(i) Spontaneous Urban settlements—e.g. mundi towns.

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*Autobiography p. 143

(ii) Industrial Town—e.g. Rourkela, Bhillai etc.

(iii) Administrative Settlements.

(iv) Induced Settlements—Port town, Satellite town, Cantonment and Port Town.

2.12 Institutional development in these places has not been uniform. Municipal institutions have been avoided in many cases. Apart from the question of their possible municipalisation, these towns have in many cases been found to exist like 'enclaves' without much integration without their immediate hinterlands. This institutional gap is a result of deliberate decision to localise the services to the 'enclaves' rather than allowing a permanent institutional framework to absorb the spillover benefits. This form of negative response is really the result of absence of any definite policy in respect of institutional arrangements for the so called 'company towns'. Peripheral and ribbon development outside growing towns have always been a problem for administration and planner. The solutions have occasionally been sought in extra-territorial municipal jurisdiction for building regulation purposes (asd in U.P. & M.P. Municipalities Act) and in such legislative measures as Chandigarh Periphery Control Act.

2.13 The provisions of these Act are oriented towards negative control. This is a far cry from broader regional planning framework within which the core city and its hinterland has to be viewed in an integrated fashion.

2.14 This leads us logically to the theme of urban-rural interlinking. The Rural-Urban Relationship Committee was the first to draw our attention to this problem. As the Committee observed, 'The transition from the agricultural to the industrial economy and the consequent spread of urbanisation are symptomatic of the tendency of homogenisation of the various sectors of society'. 'The committee's recommendation was that a whole area should be treated as one unit for administrative purposes and rural and urban areas falling within it should be treated as integral parts of the area for purpose of overall planning and implementation of development projects'. A decade later, another committee reached almost a similar conclusion while dealing with the problem of regeneration of small and medium towns in the country. Taking an olympian view the committee pleaded for a 'system of settlements, functionally somewhat different from one another, but woven into an integrated pattern of complimentarity rather than of subservience..............." (Task Force Report on Small & Medium Towns).

2.15 It seems at least at the policy level, the erstwhile rural-urban dicnotomy is slowly breaking down. Development being a synthetic process, the policy prescriptions can no longer be neatly packaged into 'rural' and 'urban' spaces. This sentiment has found clear expression in The Sixth Five Year Plan document. To quote the Plan:

> "The articulation of national urbanisation policy should then involve specific consideration of regional problems and urban development should be viewed in the context of its relationship with rural development in each region. The problems of each urban area should be seen in the light of its specific functions within the overall settlement framework". Currently, a shift of emphasis from the big cities and metro centres to the small, medium and inter-mediate towns is noteworthy. Alongside this new thrust of urbanisation policy, a suitable blending of urban and rural development is being advocated within an overall framework of a planned settlement policy."

The decade 1970-80, witnessed a number of major institutional changes to grapple with the urban question. Strikingly, urban problem-solving has been growing into a multi-institutional endeavour. The traditional municipal government has many institutional colleagues and masters now in an urban situation. Both horizontally and vertically, the institutional shape in larger urban centres has been assuming a complex pattern. The different levels of government—national, state and local are increasingly getting enmeshed in urban governance. Alongside this multi-level system of urban governance, a network of urban administrations is to be found in most big cities today, as multi-purpose as well as special purpose bodies take charge of a range or a few of the urban public facilities.

2.16 Some of the institutional landmarks of the last decade are:—

(a) the setting up of the CMDA in 1970, the MMDA in 1971, and the BMRDA in 1975, leading to a process of creation of urban development authorities in almost all the big cities;

(b) provincialisation of some of the major municipal facilities such as water supply and sewerage in states like Uttar Pradesh and Tamil Nadu; and

(c) the decay of elective municipal government in a large number of major towns and cities.

(d) IDSMT

2.17 The setting up of HUDCO has greatly facilitated the states housing activities especially for the poor, and encouraged the establishment and strengthening of housing boards at the level of the states.

2.18 By contrast, the effect of (a), (b) and (c) has been contrary to policy pronouncements regarding the need for resascitation of municipal government in our urban areas. There has been a blurring of the functional jurisdictions of co-existing organisations at the urban area level leading to occasional conflicts, delays and avoidable wastage.

2.19 It has been alleged that the development authorities have been functioning to the detriment of elective municipal government. At any rate, in a large number of our cities, municipal government is virtually dead. The only silver lining is the new Cabitet-type Mayor-in-Council system of corporation Govt. that has newly (1980) been set up in the two cities of Calcutta and Howrah in West Bengal.

2.20 The complexity of urbanisation in terms of varied spatial forms, organisational multiplicity, scale of operations and functional specialisation calls for an eclectic approach to institutional redesigning. Orthodoxy of any kind, be it municipal advocacy or sponsorship of special purpose bodies—may not suit the complext spatial manifestations of urbanisation in India.

2.21 What is increasingly being realised is that municipal institutions at the grass roots level must be stimulated both organisationally and financially. But, the municipal bodies need supportive institutions without which they would be unable to play the role expected of them.

2.22 One kind of supportive organisation is the Kerala Urban Development Finance Corporation to provide Local Development Funds. A regular grants structure on the Gujarat model is another institutional device that would stand the municipalities in good stead.

2.23 For large scale construction purposes, technical support may be necessary for regionalised state units. West Bengal has created similar regional technical divisions of the Municipal Engineering Directorate. What it boils down to is that the municipal institutions need guidance and supervision from the state which is often ill-structured or non-existent. In consequence, municipal administration is left to the whims and fancies of local politicians. When the system breaks down, the state steps in and rules in perpetuity.

2.24 Thoughtless proliferation of special purpose bodies needs to be deprecated. Yet, in large metropolitan complex, multiplicity of organisations has to be acknowledged as an institutional response to administrative complexity. The real issue is not a clear cut choice between municipal democracy and nominated special purpose bodies or development authorities. How to blend these various forms of organisations into a cohesive unity is the real question. Especially in a metro-situation, organisations cut across horizontal and vertical lines. Even different levels of Govt. local, state and central are enmeshed in metro administration. What is needed in such circumstances is an apex forum as some kind of metro antenna that will catch the different institutional threads and weave them into a coherent pattern. Obviously, such an institutional forum has to be chaired by the Chief Minister of the State or the State Urban Development Minister. The different interests—local, state and central, have to be properly represented in it.

2.25 All in all, the institutional question, in the Indian urbanisation context, has to be approached pragmatically and not dogmatically. And there are lessons from various parts of the land from where we can learn a lot.

2.26 Institutional preparedness is necessary all along the line. The Union level has broad ideological role to play in terms of enunciation of macro policies. The State level needs an elaborate organisational outfit to give planned direction to local spatial development. At the local level, a mixture of elective, semi-elective and nominated bodies would be needed in conformity with the peculiarities of local situations.

2.27 Institutional Planning demands a thorough analysis of urbanisation trends and timely action in terms of choice of approriate organisation. There is always to be found an unhealthy gap between urbanisation and municipalisation. New towns, detected in a fresh census, may be clothed with nominated institutions like a development board or a notified area authority. Smaller towns may be allowed to combine the benefits of rural development schemes and urban development. Town Panchayats, as in Karnataka, may be appropriate in such circumstances. Institutional planning also means timely extension of municipal boundaries to cope with spill-over urbanisation and a deliberate scheme of promotion of status of local bodies (e.g. Notified Area Authority to Municipality and Municipality to Municipal Corporation). Functional requirement may similarly dictate setting up of special purpose bodies or development authorities. But such institutional changes need to be brought about in a planned manner and not in an adhoc fashion.

2.28 Two other points merit special attention. While institutional and programmatic devices to fight rural poverty have been many and varied, comparable experimentations in the urban sphere are few and far between. The small Entrepreneurs' scheme to promote and encourage self-employment of the urban poor through bank loan and CMDA's technical advice is an instance in point. This Calcutta scheme, despite obvious limitations, marks a step towards poverty amelioration in course of metro development. Another imaginative scheme is the UNICEF-GOI conceived urban basic services scheme that now forms part of the 7th Plan programmes. The UBS scheme is basically directed toward environmental and public health improvement in the urban poverty pockets. Also, it has a built in provision for skill formation and economic activity promotion specially among the women of the slum areas. The essential spirit of the UBS is stimulation of voluntary community effort and necessary agency support from outside, much like temporary scaffolding work.

2.29 Since most of our major cities and towns have a sizeable slum population, more imaginative thoughts would have to be given to institutional innovation for urban poverty amelioration.

2.30 The second point relates to a formal linking up of the urban local finance with the national five year plan exercises. Here the recommendation of the RURC (1966) needs reiteration. As the committee suggested, well before the appointment of the Finance Commission under Article 280, the governor of each state should appoint a Municipal Finance Commission to examine the financial requirements of local bodies for meeting their financial obligation for water supply, sanitation, health and other obligatory services and expenditure on schemes of planning and development, forming part of the State's Five Year Plan; but meant to be executed by the local bodies. The State Government may include the financial obligations arising from the recommendation of the Municipal Finance Commission in their proposals for the Finance Commission. This, the RURC thought, would be a systematic way of integrating the finances of local bodies with the overall national finances.

2.31 In this proposal, the only technical snag is the difficulty of bringing in local plan schemes within the purview of the Finance Commission which deal basically with the committed expenditure or non-plan funds of the States.

2.32 The modus vivendi could be a bifurcation of local financial demands in terms of local committed expenditure and local funds for development purposes. In that event, the Finance Commission can take care of the committed part, and the Planning Commission via The State Plan Proposals the local development funds.

2.33 Financial strengthening or structural stimulation of municipal government takes for granted the political will to accept, protect and promote municipal institutions as an integral part of the democratic set up of the country. Wanton supersession of these bodies, as is the general custom now in many states, must, therefore, stop. Adequate constitutional and legal safeguards would have to be provided, if necessary to guard against unreasonable and long drawn-out supersession of municipal bodies.

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CHAPTER III

THE INSTITUTIONAL RESPONSE

3.1 The search for effective local authority management and the movement towards improved urban planning have been operating at cross-purposes. Consequently, the most carefully prepared urban development programmes have founded on the rocks of institutional capability and management deficiency. Further, no distinction is usually made between problems which are generated by urban growth and spatial policies, and problems which exist by virtue of the inadequacies of the management structure in those urban areas.

3.2 Basically, we are thinking of three management tasks: one of external or structural improvement of the local bodies and other functional authorities; the second of process improvement of the internal working of these entities; and the third of system improvement of the inter-institutional milieu of a whole range of state, sub-state and other local level bodies which share the same urban space, and influence the working of the core local body.

3.3 Discussion of the role of the local bodies in India is not so much on the range of permitted obligatory and discretionary functions, but the actual operative municipal jurisdiction. There has been an increasing tendency since the Second Plan period to revert some of the municipal responsibilities to the State, and to create agencies at the local or state level for handling the planning and execution of these tasks. These include the Water Supply and Sewerage Boards at the state or city level, state or city level urban development authorities, New Town authorities etc. There are 11 State level water supply Boards, three metropolitan level water supply Boards, about 100 urban development authorities and 10 metro level authorities; apart from city improvement trusts. The usurpation of local functions by these sectoral agencies and development authorities has been justified on the ground of (a) poor performance and perceived inefficiency of the municipal bodies (b) certain urbanised areas not being covered within municipal limits and the need to plan the provision of infrastructure on a regional basis, especially where a number of municipal jurisdictions overlap, (c) organisational and technical incapacity of the municipal bodies, accompanied by the reluctance of the State Governments to trust them to handle large capital works, and (d) the insistence of the World Bank in many projects to set up new institutions to handle all aspects of the project execution to get over the weakness of the existing bodies and to complete the project faster. In the process, the municipalities have been almost reduced to a position of irrelevance accompanied by the growth and strengthening of the development authorities.

3.4 The creation of the specialised agencies has also been due to the perception that capital expenditure and development call for special institutional forms, and the traditional form of municipalities is anachronistic to the increasing demands of city management. Plan funds for urban development are spent through a variety of state agencies and, when the assets are created, these are transferred to the municipal authorities for maintenance. The powers and functions for the development of an urban system for its orderly growth are being piled upon the newly created agencies. This has created a phantom distinction between capital works and maintenance. There are additional effects of this hiatus as reflected through the workings of development authorities and municipalities in different cities. Firstly, the municipalities are not able to take on the additional burden of maintenance, arising from the additional investments made by the specialised agencies, because of their own resource constraints. As a result, the investments whether in the slums or in the housing colonies or for water sewer network, are not being maintained properly, and are threatened with early damage and reduced flow of benefits to the pepole.

3.5 The municipalities are not seriously involved in the development planning process of the new agencies. Hence, the new investments are not seen by the municipalities, especially the elected element, as schemes of their own conception, and are often seen by them as having been imposed on them by some higher authorities, only for the thankless task of maintenance. The non-plan assistance following upon the transfer to assets is neither envisaged for the state agencies, nor assured to the local bodies. Nor are these authorities required nor always free to levy user charges. This results in a maintenance gap for urban services. The lack of integration leads also to the planning of investments not being accompanied by the strengthening of the physical, financial and organisational resources of the local authorities. It is nat surprising then that, as the CMDA or DDA found to their chagrin, the local bodies are not very keen to take up the maintenance responsibilities. Often the municipal bodies do no question the necessity of these investments, but the system of decision making which does not involve the participation of the municipalities ab initio. We thus find the development authorities being often obliged to incur maintenance expenditure in addition to capital investment, thus distracting their engergies from their legitimate functions.

3.6 The separation of developmental and maintenance roles for urban public services also has the effect of determination of the plan size for urban development without any reference to the size of the committed budget for urban public services so that at each successive stage of the plan expenditure, the backlog deficit for its maintenance goes on increasing. Due to institutional separation for urban development and maintenance the linkage between the plan and non-plan components of urban development gets blurred. The total replacement value of existing urban infrastructure is estimated to be of the order of Rs. 13,000 crores in 1981. At current average maintenance costs of 10% of replacement value, the maintenance liability of existing urban infrastructure should be in the region of Rs. 1300 crores, as compared with the total reported income of Rs. 800 crores in 1979-80 (of which over 30% goes to support the staff). There are of course tremendous variations in the backlog in maintenance faced by local bodies in different parts of the country, as assessed by the National Institute of Urban Affairs, as seen from the difference between the revenue income and the minimum resources necessary to maintain the assets at tolerable standards.

3.7 While the state governments vociferously demand more powers and resources from the Central Government, they are most reluctant to extend the same principle to the democratically elected local bodies. If the logic of municipal fiscal autonomy is extended to its ultimate conclusion, the separation of its powers to raise resources should imply that its own revenues are adequate to meet most of its present prospective expenditure commitments, the balancing item being devolutions from state funds. The separation of responsibility for urban development (state) and maintenance (local bodies) is the first problem to be considered. The second problem is to harmonise in a fiscal sense the municipal budgets with the plan and non plan budgets of the states, duly linked to the planning process. The solution to the first problem would lie in regarding the state agencies as under-taking planning and construction activities for the municipalities and integrating the municipal and state planning process for allocating plan funds for urban development. The solution to the second problem lies in undertaking exercises to determine the pattern of systematic and predictable devolution of state funds for local bodies along with greater resource raising by the local bodies themselves.

3.8 The Seventh Plan bemoans the far from satisfactory state of most of the local bodies, and the gradual deterioration of the services they provide. The plan proposes thorough-going reforms of municipal systems and municipal administration in general. The restoration of health to local bodies is seen as the pre-requisite for the efficient management of our towns and cities. In fact, this was one of the major objectives of the I.U.D. Project in the Fifth Plan, and the IDSMT Project in the Sixth Plan. In a country as vast and diverse as India, no single prescription for urban institutional pattern or reform can be prescribed, and one has to take note of the variations in economic development levels and cultural practices not only across states, but also within the state itself. Innovations made by different states and cities have to be studied for their relevance to other situations. Much more policy attention has to be given to the needs of the smaller towns and cities in contrast to the lopsided attention received by the metropolitan and large cities.

3.9 The role of the State is significant in the management of cities. However, except in a few states, the approach to urban areas has been somewhat ambivalent and mainly ad hoc. This is ironic, considering the political importance attached to the cities by the state governments. The role of the State has tended to be paternalistic and its actions have been largely regulatory. In almost all states, Directorates or Inspectorates of municipal bodies exist, (and in Tamil Nadu there is also a Directorate of Town Panchayats) but their approach is more of a watch dog looking for ways to admonish the municipalities rather than to anticipate their problems and provide positive assistance. Opportunities for fruitful intervention through its various agencies in the urban areas through investment or by other means are largely ignored by the State governments, even as the municipalities fail to tap the process of urban development effectively. It is a story of continuing neglect by the State coupled with the increasing dependence of the municipal bodies on the State.

3.10 The general practice in most States has been to have either (a) a department dealing exclusively with municipal affairs or (b) a multi-functional department which had municipal functions as one of its charges. There are different departments in the governments of many States dealing with different aspects of urban development like Town Planning, Water supply and Sewerage, Housing, Pollution control etc., and in West Bengal, there is a separate department for Metropolitan development without any control for town planning.

3.11 The tasks to be performed at the state level can be classified as policy planning, fiscal, legislative, regulatory, project identification and technical assistance including personnel development. The question is whether for performing these numerous functions in respect of various aspects of urban development, a single department is necessary or feasible. The planning and execution of projects call for several sectoral disciplines such as public works, public health engineering, housing construction etc. and several sectoral agencies have come up over a period of time due to the tendency reported upon earlier and have acquired substantial hierarchies which are not easy to change. Hence, there is a proliferation of sectoral departments and agencies. It is unlikely that the political and administrative compulsions behind this trend will be reversed in the near future. At the same time, efforts towards the coordination of the state level functions will have to be pursued. It will be useful to consider which among the various state level functions are more critical for the purpose of coordination against the background of an investment strategy. The formulation of an urbanisation policy, urban development strategy, its implementation through management of investment and urban administration, and its enforcement through planning and other legislative instruments are the crucial tasks which need to be performed by one department at the state level. One approach is to place town planning, housing and local government in a single department of Environments in M.P. Another approach is to have one department designated as the nodal department for the various urban management functions as with the Agricultural production commissioners. Yet another is the idea of a state level urban development authority as contemplated by Tamil Nadu with links leading upto the regional and district levels for decentralised execution. At the same time, the opportunities for integrating district level planning with the strategy for urban development as envisaged in the IDSMT guidelines will have to be carried forward under the leadership of the collector.

3.12 A special approach is required for the existing metropolitan cities, as well as the eight more which will join the club by 1991. The economic, political and social and technological significance of these cities is such that they demand a separate treatment. At present 10 out of the 12 metro cities have metropolitan level authorities, Pune and Nagpur being the exceptions. Calcutta, Madras, Bangalore and Delhi have metropolitan level water and sanitation authorities, while Bombay, Pune and Delhi have utility organisations in transport or electricity as subsidiaries to the municipal corporation. The allocation of tasks among the development authorities, municipal corporations and the utility undertakings has been ad hoc and has not been followed by territorial, technological or functional imperatives. In Madras and Bombay, as in Calcutta which set the trend, the metropolitan authority has moved into regional investment programming and coordination and monitoring for the World Bank assisted projects. The other metropolitan authorities continue to search for a role, the choice varying between several models: real estate development of the Delhi variety at the expense of action planning; peripheral real estate done by Lucknow, a concern for conservation leaving the HUDA etc. In Calcutta, the early preoccupation with public works has gradually given way to a groping for a planning and shelter role. However, this has been offset by the assumed responsibility for superfluous tasks like the distribution of gas and the cleaning of the Ganges. In Delhi, the DDA has almost continuously distracted itself by extra curricular activities like the bus depot, stadium construction and running of a lottery.

3.13 Each metro-region has typically many municipal and non-municipal bodies under the domain of the state as well as the central government—the case of Calcutta being the most extreme. In the case of Bombay, for example, the Central departments include the Telephone Mahanigam, the Posts and Telegraphs, Central and Western Railways, the Bombay Port Trust and the Nhava Sheva port trust, the Defence establishments etc. There are as many as 4 statutory authorities, one New Township Company, and 19 other state agencies including the local bodies functioning in the metropolitan region. There is an obvious need for intermodal coordination in transport and their integration with traffic management and licensing of vehicles. The critical role of transport and telecommunications in metropolitan decongestion policies has been recognised at great cost in the case of Kalyani in West Bengal and New Bombay. The level and spatial distribution of these and other services need to be carefully planned and coordinated with other aspects of metropolitan planning. Public safety, freight movement, wholesale trade, pollution control higher education, conservation of monuments, supply of essential commodities etc., are tasks that require a metropolitan wide perception, analysis and coordinated action. Strategic planning for development, capital budgeting, and the coordination of activities like the water distribution network with the traffic network, or of investment policies with those of tariff are critical metropolitan functions. Not only can these not be performed by sectoral agencies, but failure to perform them will undermine the efficiency of investment.

3.14 The Seventh Plan recognises that the process of metropolitan planning for investment has to be related to the State Plan in an organised way. The metropolitan sub-plan, like that of CMDA, has to be depicted in the State Five Year Plan and get reflected in the National Plan. As regards execution, the experience of Calcutta has shown that the quality of planning, capital budgeting or coordination process has not been much enhanced by bringing various metropolitan agencies under one umbrella; the CMDA has actually been reverting project formulation and execution responsibilities to local authorities. The rationale for a metropolitan development authority is not so much what it can do as what other agencies cannot do at the metropolitan level and hence may go by default, as indeed it is happening in Pune and Nagpur. In essence, metropolitan management is multi-sectoral and transcends sectoral interests, and hence the metro authority should ordinarily not have execution responsibilities itself. At the same time, the essential role of the municipal body for traditional functions and its right to be involved in and to be assisted to maintain, investment decisions has to be respected.

3.15 After independence, over 100 new towns have been built including three capitals at Chandigarh, Bhubaneswar, and Gandhinagar, the rebuilding of Bhopal, satellite towns at Kalyani and New Bombay, port towns at Haldia and Paradip, industrial towns like Durgapur, tourist towns like Sonmarg, refugee towns like Faridabad etc. However, many of these towns were located and built to meet the immediate needs or to satisfy a particular function without any apparent relation to the forces of urbanisation. Though the standards adopted in these towns have been much higher than in other urban areas, the administrative and financial arrangements for their operation and maintenance have been grossly inadequate. The residents of the industrial townships are hardly taxed and have resisted the demand for setting up elected municipal bodies for orderly management and charging for civic services.

CHAPTER IV

PROBLEMS

4.1 During the early stages of urbanisation, problems in regard to management of urban system was felt only in a few large metropolitan cities. By and large, municipalities and other local bodies were able to cater to the requirements of urban infrastructural development with their own resources and minimum fiscal support from the State Governments. However, as urban settlements grew in population and in complexity, governance of these rapidly growing urban centres started becoming more and more difficult. Rapid increase in urban population has compounded this difficulty. In the previous chapter we have gone into the question of functional specialisation to overcome this management problem in urban areas which led to the creation of bodies like slum Clearance Board, water-supply and Sewerage Boards etc. Frequently the activities of different agencies overlap and in many cases, wasteful duplication of work results. it is felt that the response to the growth of urban management problem has been one of ad-hocism. tackling the problems as and when they arise, with the appropriate authorities indulging mostly in fire-fighting exercises.

4.2 Apart from the problems arising on account of functional specialisation as mentioned above, problems started arising also on account of the need for coordination between different local bodies coming within an urban agglomeration. Geographical spread of urbanisation started spilling beyond the confines of one particular municipality and in many areas there was no proper institutional framework for coordination of multiple functional agencies added to this urban agglomeration and coordination of activities of different local bodies operating in this agglomeration. This resulted in pockets of development taking place in different local bodies in the urban agglomeration, without any overall framework or plan. The operation of multiple dfunctional agencies added to this confusion and there were cases where housing blocks were developed without sufficient infrastructural agencies like transportation, communication, education, water supply and drainage, etc. leading to lopsided development of urban areas.

4.3 Besides this, in many of the large urban centres there are a number of projects undertaken by the Central Government Departments or Undertakings like for example railways, Airports, ports, Tele-Communication networks. In many cases, the development of these projects by Central government with undertakings has been done without any consultation with the State Governments or with the local bodies concerned, and the problems arising on account of the development of these projects have not been fully appreciated. Central Government Departments often go to the State Government for clearance of the projects at an advanced stage, after formal decisions have been taken at which time it becomes too late to make any rectification. There has also been no attempt to co-ordinate the development of activities by these Central Government agencies in keeping with the overall development of the urban areas and this has resulted in the services rendered by Central Government agencies not keeping in line with the requirements of different areas within the urban agglomeration. India's urban population is likely to reach a level of 40 to 50 percent of the total population by the turn of this century. This will mean that unless a well thought urban management system is evolved and its functions are defined clearly, we will soon reach a stage of urban chaos causing irreparable problems and misery to the urban population. In most major urban centres the services have already reached a breaking point and slowly these centres are degenerating with lack of shelter, basic amenities like water supply and drainage, visible deterioration in their environment, and lack of employment to the people resulting in a number of social problems. There is no time to lose to evolve a proper Urban Management System if we are to retrieve our urban centres from this chaotic situation.

4.4 But before we identify the Urban Management problems confronting us and the possible solutions or remedial measure needed, it is necessary to understand and accept the following facts.

(1) Nearly 40% of India's population will be living in urban centres—small and big by end of this century. This will mean economic development of the country should be reoriented with an increase in urban bias and investment in urban development should be stepped up.

(2) As per the 1981 census out of the 159 million people living in 3298 urban settlements, 94 million—about 60% of the total—lived in 216 Class I Towns, the share of 12 metropolitan areas being 42 million—about 27% of the total urban population. These trends indicate that urban population is concentrated more in a few bigger settlements and that problems of larger cities and metropolitan areas should be studied on a separate footing and suitable urban management system evolved for them.

(3) The present system of allocation of funds under the Five Year Plans on a sectoral basis should be changed and funds earmarked separately for urban development so that allocations for development areas like roads, water supply, employment etc. should be handled in a co-ordinated manner by a single agency.

4.5 The problems faced in the urban management can be broadly grouped under the following four major issues:—

(1) Lack of an overall Urbanisation Policy and Strategy and the absence of co-ordination or spatial planning with investment planning.

(2) Lack of co-ordination of programmes undertaken by different bodies operating the urban agglomeration.

(3) Inadequacy of funds for the development programme that have to be undertaken to stem the urban economic, physical and social degradation.

(4) Absence of Urban information system and date necessary for proper urban planning and development.

(5) An absence of linkage between the grassroot democracy and functional agencies undertaking development with the urban areas leading to ineffective participation of the people in the development process in urban areas.

The above issues are discussed briefly below.

4.5.1 Lack of urbanisation strategy and policy

In most areas, urbanisation has been allowed to take place, on the basis of natural forces operating and there is no broad urbanisation strategy or policy adopted by any State. In the absence of long-term urban development plan and strategy, the provision for urban infrastructural services in urban centres has always been behind the actual requirements. If a proper plan has been worked out, advance action could have been taken for the provision of these urban infrastructural facilities. Further-more, there has been no positive policy towards the encouragement or building up of certain urban centres or a policy of dis-incentives to decongest some of urban centres which have grown beyond the critical point.

The planning process in the State Governments funds mostly on sectoral basis with no linkage of specific requirement spatial planning. For example, the Industries Department might take a decision on the setting up of industrial estates or industrial complexes depending upon the location of raw-materials or the need for development of certain backward areas. But no thought is normally given to the concomitant investments that will be required in other sectors like Housing, Water Supply, Health, Transportation etc. In order to provide the necessary facilities to support the increased population that would be in the area due to the direct and indirect employment generated by the setting up of these industries. Similarly, agricultural marketing complex may be set up by the Agriculture Department without paying adequate attention to the supporting transportation net-work that is required. A proper Urban Development plan should co-ordinate the need of spatial planning and investment planning and different sectors.

4.5.2 Lack of Co-ordination

With the growing size of many urban centres, one finds that a large number of agencies start operating in these urban agglomeration that can be broadly grouped into the following categories:—

(a) Local Bodies

(b) Functional agencies of the Government for example the Housing Board, Slum Board, and Water Supply and Drainage Board.

(c) Government Departments like Education, Health, etc.

(d) Central Government agencies and Departments like the Railways, Telephones etc.

While all these institutions have one and the same public, they often act as though each has its own clients and its own objectives. Various functional institutions were created, with the hope of securing a better spatial and functional co-ordination. In the absence of proper institutional framework for the overall planning and co-ordination, the agencies sometimes pull in different directions. In some cases, the response of the Government to set right this lack of co-ordination has been the creation of Metropolitan and Urban Development Authorities and enactment of more comprehensive planning and development legislations.

4.5.3 Problem of Finance

Fiscal resources of local authorities have virtually remained stagnant while the problems of these authorities are mounting. There has been no effort to improve their finance creating a situation of near break down of their functions. They are increasingly dependent on State and Central Government grants. This tendency is not a healthy one. It limits not only the freedom of the local authority in making decisions but also their sense of responsibility.

The problems of development have spilled beyond the physical limits of the local authorities at least in major urban centres, needing a more comprehensive approach to certain fields such as water supply, drainage, maintenance of the surrounding rural areas as green space etc. There is need to channel sufficient finance for urban development as a whole, without restricting financing programmes to local body limits. Issues relating to funds needed for capital investment for new programmes and funds needed for maintenance of assets needs to be tackled separately.

4.5.4 The need for organising, information systems for better urban management

One of the lessons that has been drawn from the experience of uncertainty and complexity is how little we really know about cities and communities, urban government and policy, and the effect our actions have on situations. Decision makers have too little knowledge to go on. There is need for research on urban development and management. There is need to develop information systems and continually update them for sound urban management and development decision.

4.5.5 Participation by the people

With the increasing shifting of responsibilities of the local bodies to new and more professional bodies like the water and drainage board, public health departments housing agencies and so on and the lack of sources of income and their dependency on government grants have almost made the local bodies irrelevant. This trend is dangerous for the grass-root level democracy. There is need to rehabilitate the local bodies with the twin objectives of efficiency and democratic principle. Fiscal mechanism for automatic fund transfers would have to be thought of so as to make these local bodies self reliant atleast in so far as maintenance of services are concerned. Further these local bodies will have to be fully involved in the planning and development process in urban areas since it is only through these bodies that we can get proper feedback from the citizens in the areas.

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CHAPTER V

SOME SUGGESTED SOLUTIONS

5.1 In the foregoing chapter, we have attempted to trace the process of urbanisation and identify the problems related to management of urban growth. The emphasis has been on the institutional framework and the need for their reorganisation.

5.2. State and City level policy integrated with a national level urbanisation poilcy is necessary to tackle the phenomenon of urban growth. In the policy action requirements, the emphasis shifts gradually from policy towards action as one shifts from national to state level to local authorities level. However, the continuity of sequence need be recognised, and the institutional framework should reflect the need for this continuity. It will, therefore, be incorrect in our opinion to have rigid structures accommodating a clearly legalistic view with the functions related to the State or local authority. Dynamics of urban growth ceases to acknowledge such diverse groups of functions and their integration will require constant inter action and coordination at all levels—national, State and local authority.

5.3 There is, therefore, need for national level urbanisation policy. Similarly, every State should evolve an urbanisation policy, with the framework of national policy. This chapter has tried to formulate a structure for this policy making body at different levels.

5.4 Before going into the organisational set-up needed for urban management it is necessary to postulate the following:—

(1) Urbanisation should be tackled from a regional level in order to identify and establish a hierarchy of urban centres from rural service centres to metropolitan or other major cities serving the region as a whole.

(2) The economic planning should be reoriented it we have to achieve anything meaningful in urban development. Such reorientation should recognise the enormity of urbanisation and the consequent problems.

(3) Development of medium and small towns should be assigned priority to stem the growth of Metropolitan Centres and other major cities.

(4) The importance of democratically elected local bodies in the management of urbanisation should be recognised and they should be assigned adequate powers to enable them to carry out their development and maintenance functions.

5.5 At the national level, it is suggested that National Urbanisation Council be constituted under the Chairmanship of the Prime Minister with the Ministers connected with various developmental activities in urban areas as Members. The Vice-Chairman of the Planning Commission and the Chief Ministers of the State should also be made Members of this National Urbanisation Council. The charter of the council would be to review annually the stage of the urbanisation of the country and to approve the policy guidelines of the future urbanisation. In particular, the council will take stock of specific stress points in various urban areas and decide on measures needed for rectification. The council will also decide upon programmes and plans needed to be initiated to overcome the various gaps in urbanisation both in the medium and long term.

In order to serve the National Urbanisation Council and to have day-to-day control, a committee headed by the Cabinet Secretary should be constituted, which be designated as National Urbanisation Committee. This would have the Secretaries of Ministries connected with development works in Urban areas as Members. This committee would identify the long, medium and short term action areas and recommend the issues to be incorporated in the urban policy.

5.6 It is evident from the problems discussed earlier that there is need to create a centralised urban development agency at the State Level to Coordinate urban development programmes through out the State. Such an agency could be envisaged at two levels—one at policy making and political level and the other at the policy implementation level. The policy formulation could be entrusted in area Planning and Development Council. Such a council should be headed by the Chief Minister of the State and should include all Ministers incharge of development works in urban areas. Representation should also be given to elect members of the State Legislature, the parliament and other citizen groups. This council would advise the Government in all matters relating to planning and development in rural and urban areas of this State and would give the necessary political support needed. It will also evolve a regional planning and development policy with a view to securing integrated urban and rural developments and to initiate measures necessary to implement this policy. Similarly, they would be responsible for drawing up an urbanisation policy for the State.

The second body at the State Level could be a State Area Planning and Development Authority. This would be in some sense an executive arm of the Area Planning and Development Council. This Authority would be headed by a senior officer of the level of Chief Secretary and would have on its board Secretaries to Government incharge of those sectors, which have a direct bearing on urbanisation. Besides that, members representing technical and academic interest should also be included.

5.8 The functions of such an State Authority would be broadly as follows: —

(1) To assist the State Council in matters relating to Planning and Development of urban areas;

(2) To assist the State Council to evolve a Regional Planning and Development Policy and an urbanisation policy for the State;

(3) To select urban centres for development on a priority basis;

(4) To prepare Development Plans for any area in the State requiring special attention.

(5) To coordinate and allocate investment in urban areas;

(6) To coordinate physical and economic planning in so far as it relates to urban development and establish a close liaison with the Planning Commission for deciding investment priorities and quantum of investment needed;

(7) To control, supervise and give necessary policy directions to the Metropolitan and urban planning and development authorities at the local level;

(8) To maintain and operate the State Level Urban Development Fund (suggested elsewhere).

5.9 The assembly and the acquisition of land in time for carrying out urban projects has been the main bottle-neck in successful and timely implementation of urban development projects. It is felt that a full time specialist organisation needs to be set up for the purpose of large scale land acquisition and land readjustment that would be needed for urban development. This organisation would work under the overall control of the State Area Planning and Urban Development Authority suggested above. Such an organisation with officers decentralised in different parts of the State would make a long term plan on the land requirements for urbanisation in different urban centres and would initiate advance action to assembly and acquire the lands necessary for the purpose. The setting up of such an organisation coupled with simplification of procedures through suitable legislation suggested in the chapter would go a long way in getting out of the constraints in regard to getting of land.

5.10 The other major constraint for successful urbanisation is that of finance. The present method of piecemeal financing of different projects in various urban areas has lead to uncoordinated effort and unbalanced growth. So, there is a need to create a revolving fund at each State Level for the purposes of urban development. This fund would be operated and maintained by the State Urban Development Authority. The Government should earmark surcharges levied like motor vehicle tax, entertainment tax, sales etc. etc. in urban areas for crediting to such a fund. The State Urban Development Authority should also be permitted to borrow money from banks and debentures should also be floated to be credited to the revolving fund. All investments being made by the Government in urban centres for the purpose of providing infrastructural facilities such as housing, roads, water supply and drainage, parks and play fields etc. should be channelised through this fund instead of direct investment by different agencies. This would ensure a coordinated financing and proper and systematic development of urban areas. Loans are to be given to urban development authorities from out of the funds for taking up suitable projects. The repayment from out of these projects would also be credited back to the revolving fund. At a later stage, it is expected that the fund itself would become viable and self-sustained and capable of doing all financing requirements of capital programmes of different urban development authorities.

5.11 The existing legislation on planning, development and management of urban envisages a wide variety of institutional framework with their powers and functions. While there cannot be an absolute uniformity in the institutional set up for management of urban settlements, the need to reduce institutional overcrowding is well-established. The general trend noticed in the country is to set up supra-municipal level institutions for the purpose of planning and development functions. While the debate on the justification or otherwise for segragating planning and development functions continues, it is observed that by and large, the urban development authorities, which have emerged and the institutional response to overcome the rigidities of municipal jurisdiction and take care of the urban over-spill, combine both the planning and development functions; thereby compounding the existing malady of creating fresh institutions without trying to remove the deficiency in existing ones. Accepting that absolute uniformity is neither possible nor desirable, does not rule out the need for some basic uniformity and reduction of the wide divergence as now evident. Attempts are already afoot to have a uniform municipal legislation. Similar attempt should be made for urban development Act, which will concentrate more on planning and development. The present Town & Country Planning Act should, therefore, be replaced by an Area Planning & Development Act. The Central Government should frame a model legislation for this purpose. The legislation should, inter alia recognise the need for accommodating the dynamics of urban growth and not compound for static jurisdiction of existing urban bodies.

5.12 We also feel that there is need for planning for development of all urban settlements irrespective of their size. The nature and extent of planning may vary. While the functions of the local authorities, municipalities or town panchayats will mainly be action-oriented plan, the development authorities covering areas larger than the urban settlements. For this different types of cities should have different types of organisations. The areas where urgent action is called for are discussed briefly below:

(1) Land Acquisition Act: The existing legal instrument for land acquisition is outdated and should be replaced by a new piece of legislation. The new act should take care to see that land is made available for urban development without delays and at a resonable cost. This act should also provide for land readjustment to obviate large scale acquisition and the consequent locking up of funds.

(2) Urban Development Act: The Town and Country Planning Acts should be replaced by an "Area Planning and Development Act". With the establishment of a number of urban development authorities in the country conflicts between planning and development agencies have come to focus. The functions of planning and development of urban areas should be brought under one piece of legislation. The institutional set up envisaged should also handle both planning and development of urban areas in order to secure the desired coordination.

The local level authorities for urban development may be of four categories viz:—

(1) Metropolitan Planning and Development Authority.

(2) Urban Planning and Development Authority.

(3) New Town Planning and Development Authority.

(4) Municipalities and other local bodies.

Constitution of these authorities should be provided in the New Area Planning and Development Act suggested earlier.

(1) Metropolitan Planning and Development Authority: Such an authority should be established for every urban centre and its agglomeration with a population of one million or more. All development functions of different agencies operating in the area should be coordinated by the Authority.

(2) Urban Planning and Development Authority: Bigger cities and towns which are not metropolitan areas should be brought under such an authority entrusted with the function of planning and development of the area brought within its jurisdiction. Here again all development functions of other agencies should be coordinated by this Authority.

(3) New Town Planning and Development Authority: Development of a number of new towns is a necessity for the increasing urban population. Regional studies for urbanisation and identification of a hierarchy of urban settlements suggested elsewhere will identify areas where new towns should be thought of. Such an authority should be established for planning and development of these new towns. They may have to be established as independent bodies to run on commercial lines.

(4) Municipalities and other Local Bodies: Small Towns and urban centres where urbanisation has not spilled beyond their corporate limits should be made to function as urban planning and development agency for its corporate area. The new area planning and development Act should make necessary provisions for this purpose to enable these local bodies to function as planning and development agencies as well.

5.13 Our suggestions should not be construed to be contrary to our concern about institutional overcrowding. We have mainly recognised the existing realities of the situation and tried to rationalise the structure as far as possible. This can be done in two ways—firstly through political integration and secondly by trying to rationalise the different institutions connected with development, planning, and programmes. We reiterate once again that urban management is basically a municipal function. However, there is need for organisational linkages for urban settlements overspilling the municipal jurisdictions. Such linkages are also necessary for other functional organisations.

5.14 Lastly, we would like to stress that metropolitan cities have special characters and special problems of magnitude different from other settlements. It is, therefore, necessary to consider the problems arising from the lack of institutional interaction in the metropolitan cities. The next chapter deals with this matter.

CHAPTER VI

SPECIAL PROBLEMS OF METROPOLITAN CITIES AND NEED FOR A METROPOLITAN CITY COUNCIL

6.1 In an urban settlement, various institutions operating at different levels have to work in close proximity. This results in the inevitable overlap, more so in a metropolitan city where the number of such institutions are varied and large. Generally speaking, cities with population of more than a million are referred to as metropolitan cities. There are 12 such cities in the country today. However, the population criterion alone cannot be a satisfactory method of identifying a metropolitan city. A metropolitan city will have to be identified in relation to its interlinkage with the hinterland which it serves and its dominant role, in the national or regional context. Population could, however, be accepted as a fair indicator of metropolitan character of a city.

6.2 The identification of a metropolis would vary from institution to institution. Thus, the concent if extrapolated on a map would indicate different physical dimensions covering different areas, depending upon the agency concerned. There are, therefore, two components, one is the different layers of institutional functions categorised according to their linkages with the national, state or local Government; the other is their differing physical jurisdictions. In other words, the former is termed as a form of three-tier layering of the institutional framework and the latter is more in the nature of horizontal spread. Considered in this background, a metropolitan city would, therefore, have a different geographical and jurisdictional connotation for different agencies. Thus, the planners deliniation would be somewhat different from the municipal or administrative jurisdiction. A Police District would be quite different from that of the Telephone or postal authorities. While considering the institutional framework and their interaction, therefore, one has to identify, within an acceptable format, the area of a particular metropolitan city one is concerned with.

6.3. A metropolitan city may be considered co-terminus with the municipal jurisdiction. This will, however, present an unreal picture in the case of some metropolitan areas, e.g. Calcutta Metropolitan Area (CMA), which consists of the Corporation, 32 municipalities, 2 notified areas and more than 500 rural panchayats. Similar picture would arise in respect of Madras, to some extent. In Bombay and Delhi also the planning areas are spread over more than one local authority's jurisdiction. In addition to the local authority jurisdiction, therefore, there has to be other criteria for clearly identifying a metropolitan area.

6.4 For this purpose, it would be easier to identify the institutions generally associated with metropolitan cities. With technological development, increase in aspirations and improvement in standards, the number of agencies working within a limited geographical area for the purpose of servicing a clearly identified settlement is increasingly continuously. In a metropolitan city, one could list out a large number of such institutions, which are considered essential for the smooth and efficient functioning of a city. Our objective, however, should be to concentrate on some of the major institutions which have a vital role to play in terms of smooth or efficient functioning of the metropolis. Keeping this in view the first objective should be, therefore, to identify the institutions to be taken into consideration. These are:

(1) The Local Authority set up—Corporation/Municipalities.
(2) The functional authorities like Sewerage, Water Supply Board etc.
(3) Electric Supply Authority.
(4) Road Transport Corporation.
(5) Police.
(6) Revenue Administration Authorities.
(7) Posts and Telegraphs.
(8) Telephone.
(9) Railways.
(10) Port Authorities.
(11) Airport Authorities.
(12) Public Works Department (State and Central).
(13) The Metropolitan Planning and Development Authorities.

6.5 A look at the institutions identified above (there may be more), will show that these institutions are accountable to different levels of Government—the National, the State and Local Authorities. It is easy to seggregate them as their origin and accountability emanate from their functions entrusted to them according to respective statutes, from where they also derive their authority.

These authorities, working within an urban settlement, have to function in close physical proximity. This obviously influences the functional linkages. There is, however, a tendency on the part of each authority to consider its role as that of paramount importance, overlooking and, in many cases, ignoring the complementary role of the other institutions. More so, in case of the Central Government institutions vis-a-vis the State Government and local Government set up, and the State Government institutions vis-a-vis the Local Authorities. For instance, when the Airport Authority decides to expand the facilities in an airport, or open a new terminal, it has its obvious repercussions on the traffic circulation pattern and the public transport system, but rarely is there an attempt made to inter link these functions. Each authority continues to work in its own sphere. Similarly, when the Planning and Development Authorities consider the development control regulations or plan for development of new areas, the need of the other organisations are not always taken into account. These are a few examples to highlight the existing situation where the institutions work in vertical compartments though they cannot totally overlook the presence of other organisation. The inter-dependence between the institutions are, therefore, frequently ignored, creating inevitable problems in smooth and efficient functioning. (One of the worst manifestations of this difficulty is the frequent disruption of road services). It is possible to identify a number of areas with similar problems.

6.6 Given the existing situation where all the three levels of Government will have to work within a definite geographical area, it is not practicable to visualise a situation where there would be a total integration of functions. Moreover, the Constitution of the country lays down the division of powers between the Central and State Governments. The State Government in its turn, have given certain functions to the local authorities. The division of functions have sufficient justification and do not call for a revision. What is, perhaps, called for is to take a fresh look at the opportunities for better coordination and interaction between different institutions functioning within a metropolis.

6.7 The first and foremost task would be to identify a clearly defined geographical area of a metropolitan city. The city limits can never be a static concept and would, therefore, have to be reviewed from time to time. It may be difficult to suggest a definite model for this purpose, as it would vary from region to region. There should, however, be some basic similarity in approach in identification of city limits. An elucidation may highlight this point. Many metropolitan areas at present spread into more than one revenue districts. A district has a completely different police and general administrative set up than that of a metropolitan city. Thus, while a particular area may be inter-linked for planning purposes, they may remain divided into different administrative districts, putting severe strain on the system. There is a need for rationalising this.

6.8 When a large number of institutions are required to interact and coordinate their activities on a day-to-day basis, there should be a formal system of interaction and coordination. As the institutions are controlled by Central and State Acts, this can only be achieved if the need for such an arrangement is accepted both by the State and Union Government. The objective should not be in any way to impose a superior form of control over the institutions. The objective should be to provide a common platform for inter-action and coordination. This could also function as a store house of information where plans and programmes of the respective Authorities could be kept and readily tapped whenever required by a sister institution. It should be an advisory body consisting of representatives of the agencies, with their supporting secretariat.

6.9 The existing institutions can continue to function in accordance with their requirements without being hindered by other consideration. However, the vital task of inter-linkages will be established through constant deliberations and discussions at a platform now available through the proposed arrangement.

6.10 The National Commission on Urbanisation, in its Interim Report, has already recognised the need to consider four metropolitan cities as national cities. In other words, national commitment to these metropolitan cities cannot be over-looked. Changed circumstances call for a flexible framework of urban management where existing institutions can continue to play their respective roles and at the same time interact with each other, thereby establishing their inter-dependence.

6.11 If the need for a composite body is accepted it is necessary to consider the composition of such a Body. Several alternatives are possible. One such alternative could be to consider the Mayor as the Chairman of the Body (referred to as the City Council). The second alternative could be to have a Chairman selected by rotation. The third is to select a Minister of the State Government as a Minister for the particular Metropolitan Council, who could chair such a Body. Of these alternatives, the first alternative would appear to be best preferred. The Mayor, despite his exalted rank, is but one of the representatives of the various institutions in the city. A Chairman by rotation will not be able to ensure necessary continuity. On the other hand, the Minister for Metropolitan Development would be better suited to be entrusted with the responsibility of chairing the meetings of the Council.* Heads of the metropolitan level institutions, accountable to Central, State or local Govt. for delivery of urban services, would be members of this Metropolitan Council.

6.12 The meetings of the Council should be at regular intervals, properly recorded. Its recommendations should be advisory in nature. There may also be a requirement cast upon the institutions to keep the Council informed of all the major developments in terms of planning execution of existing projects or ideas about the new project. The Council can devise its own method of reviewing and monitoring the existing situation in a metropolitan area and keeping the members informed of the problems of deficiencies, if any.

There is a possibility that a Council of this nature can be viewed by many as one more layer in the multi-functional set up in the city. However, the number of agencies are large and are deeply entranched in tradition. Only the formal setting up of a council and not informal arrangements tried out in many cities can introduce a system of inter-institutional linkage.

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*The term 'Metropolitan Development' has been used for the sake of convenience. It may be designated otherwise in other States. However, it is important to highlight the need for a separate Minister for a metropolitan city.

CHAPTER VII

CONCLUSION & SUMMARY OF RECOMMENDATIONS

7.1 The pace of urbanisation in the country will continue to increase. This is an inevitable process of industrialisation and economic growth. The structural change in the Indian economy already noticed in 1981 would be more marked over years to come. This would have its manifestations in the urban settlements as well. Increase in number and area of urban settlements, gradual transformation of rural settlements to urban settlements and technological development etc. will induced demand for a much higher level of services. Problems of urban management will become more complicated involving a large number of services. Considered in this background, this Group, has tried to bring out the need for introducing much needed reforms in the institutional framework. Institutional structure, to some extent, is a legacy of the past. In many ways, traces of the old colonial system of municipal administration still exists in some of the large cities of India. Special purpose development and functional agencies are but an expression of the so-called need for achieving efficiency through specialisation, supposedly required to respond to the increasing needs for higher technology. All these are achieved at the cost of basic institution, namely the municipal body.

7.2 Chapter I has identified various types of urban institutions and the policy pronounciations on the institutional reforms in the post-independent India. Chapter II has briefly covered the urbanisation process and the institutional response to this urbanisation process, bringing out clearly that municipal institutions have been languishing perhaps because of reluctance to decentralise power and resources at the municipal level by the policy-makers. This Chapter has also tried to identify some of the institutional land marks over the last decade, and brings out the fact that the present institutional structure is not in a position to accommodate the increasing pressure of urbanisation in the country. Chapter III covers the institutional response, bringing out the adhoc approach to meet the requirements of smooth and efficiency urban management. It also deals with the problem mainly arising out of the lack of inter-action and coordination due to functionalisation of the institutional framework and the gradual decline in the status of the municipal bodies, financial difficulties and lack of an overall urbanisation policy at the national and State level. Chapter IV highlights the problems arising out of institutional response. Chapter V has gone into some of the suggested solutions which have highlighted the need for a proper inter-linkage between the national and State Govt.'s urbanisation policy framework. This chapter has also tried to consider the possible institutional set-up for different categories of urban settlements.

7.3 We recognise that the metropolitan cities have their own special problems and require special attention. Chapter VI has, therefore, considered the institutional problems and the possible approaches in respect of metropolitan cities. It is necessary to point out that we are of the view that the municipalities are the basic institutions for management of urban services. Institutional reforms should not, therefore, be at the cost of municipal bodies. It should try to achieve the necessary integration required for management of the present-day urban settlements. The larger the settlement, the greater is the problem. To achieve this interaction some amount of formal intervention is perhaps necessary instead of the currently noticeable adhoc response.

7.4 SUMMARY OF RECOMMENDATIONS

(1) Primacy of Local Government in urban settlements should be recognised. Actual institutional development for urban India has been at variance with such prescriptives (para 1.3);

(2) Establishment of competitive institutions to municipal bodies has been regular feature in most urban settlements of India. The area base or State-wise organisations which have come up to undertake such functions as housing, water-supply, sewerage, slum clearance, and urban development (para 2.4);

(3) Along with the proliferation of institutions, there is a need to take note of the variety of urban settlements that have come up in the wake of industrialisation and economic development (para 2.5);

(4) Orthodoxy of any kind, whether "municipal advocacy" or "sponsorship of special-pourpose bodies" may not suit the complex manifestation of urbanisation in india (para 2.14);

(5) The municipal institutions at grass-root level must be stimulated both "organisationally" and "financially" (para 2.21);

(6) The Union Govt., has a broad ideological role to play in terms of macro policies, specially in relation to institutional framework for urbanisation (para 2.23);

(7) There is need for proper institutional planning which requires a thorough analysis of urbanisation trends and timely action in terms of choice of appropriate organisation (para 2.21);

(8) There is a need to introduce institutional and programmatic devices in urban areas for fighting urban poverty on the lines similar to the programmes against rural poverty (para 2.28);

(9) Local-level finance also requires special attention;

(10) At the State level, municipal and State planning should be integrated for allocation of funds and for perspective planning in respect of urban development (para 3.7);

(11) The State Govt. has significant role to play in the management of urban settlements. However, the approach in most of the cases has been adhoc (para 3.9);

(12) Policy planning, fiscal, legislative, regulatory, approach identification, and technical assistance including personnel development are some of the tasks which can be performed by the State Govt. (para 3.11);

(13) A National urbanisation Council under the chairmanship of the Prime Minister with State Chief Ministers as Members should be set up in order to formulate national level urbanisation policy and to review the same from time to time;

(14) A committee headed by the Cabinet Secretary should be constituted to review the national urbanisation policy. It can be designated as the National Urbanisation Committee. Secretaries of the Ministries connected with the development works for urban areas should be members of this committee (para 5.5);

(15) At the state level urban development agencies should be at two levels—policy-making and policy implementation level. A State Urbanisation Council with the Chief Minister as Chairman and concerned Ministers as members should be responsible for policy making in respect of urbanisation (para 5.(6);

(16) There may be a State Area Planning & Development Authority for state-wise policy implementation (para 5.6);

(17) A special organisation should be set up to identify and overcome the bottlenecks in respect of land acquisition for urban development programmes. If necessary, legislation on land acquisition may be amended for this purpose (para 5.9);

(18) A revolving fund for urban development should be set up at the State level. All investments in urban centres for the pourpose of providing infrastructural facilities such as housing, roads, water-supply should be channelised through this fund (para 5.10);

(19) The existing Town & Country Planning legislation should be replaced by an Area Planning & Development Act (para 5.12);

(20) Different categories of urban settlements should have different levels of authorities for urban development (para 5.12);

(21) There is a need to recognise the special problem of metropolitan cities;

(22) A Metropolitan Council under the chairmanship of a Minister for metropolitan development (urban development) with heads of existing agencies under control, State & Local government as members should be set up to coordinate the plans and programmes of different agencies belonging to the Centre, State and Local Govt. its role should be advisory and the objective should be to provide a common platform for inter-action and coordination (para 6.8);

(23) Different agencies should keep this Council informed of their future plans and programmes.

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REPORT OF THE WORKING GROUP
ON
ENVIRONMENTAL ENGINEERING ISSUES

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PREFACE

The working Group on Environmental Engineering met 4 times when the undersigned was privileged with the task as the Convener of the Group since October 1986. Given a comparatively shorter time than that provided to the Commission the Group had to depend on secondary sources of information. The Group could not generate any primary data by instituting any research investigation as done by most of the Working Groups. Inspite of constraints the Working Group could produce the report in time and the co-operation of all the members of the Working Group as listed below is gratefully acknowledged. The Secretariat of the National Commission on Urbanisation and Shri M. C. Arora, Under Secretary, NCU, Ministry of Urban Development, Government of India, in particular provided the requisite infrastructure without which the Report could not have been finished in time. The members of the working Group are Shri. S. Sarkar, Assistant Adviser, CPHEEO, Ministry of Urban Development, Govt. of India, Shri P. N. Qazi, Retired Chief Engineer, Public Health Engineering, Govt. of Madhya Pradesh, Shri T. Nandakumar, Director (Water Supply), Ministry of Urban Development, Govt. of India. The information support provided by the Adviser, CPHEEO, Ministry of Urban Development, Govt. of India, is gratefully acknowledged.

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I. SUMMARY & RECOMMENDATIONS

The working group on Environmental Engineering renamed the section as Urban Environment. It is repeatedly felt that water is going to be the key environmental compoment in urbanisation besides, of course, land. The garden of urbanisation must not nature a few daliahs lent large number of crysenthemums spread equitably between States and Union Territories. In this regard many small and medium sized towns are identified as generators of economic momentum (GEMS.) The group strongly feels that these GEMS must have predetermined urban farm with a view to make these urban centres self sustaining. Urban form is an important tool in optimising urban infrastructures which in turn makes the town less expensive to run. Appropriate urban farms are congenial to conservation of resources and recycling of residues (wastes). The group recommends the following as major environmental issues.

1. Urban Form

1.1 Evolution of urban form for some selected towns chosen as GEMS, selecting one from plains, one from coast, one from undulated terrain, one from hilly region and one from desert region.

1.2 Conservation of resources by introducing environmentally compeatible industries in clusters and thereby utilising waste materials of one industry as raw materials of the other. Such concept needs to be extended in domestic sector by producing resources out of garbage and municipal sewage. To recover resources of municipal sewage, the sewage must not be mixed with even treated industrial wastes containing any toxic and hazardous constituents. The industrially advanced countries are now repenting for the mistake made by introducing common sewer lines for industrial and domestic wastes.

1.3 Appropriate urban form reduces the haul distances for both domestic sewage and garbage between places of origin and places of disposal where these are to be used for recovery of resources. Thereby, economy is achieved in transportation and through resource recovery, recycling and these result in conservation.

2. Water

2.1 Conservation of water needs to be vigorously pursued. Per capita water supply of 100 litre per day is considered optimum, ensuring equitably distribution in the entire town. Leakage in water distribution systems need to be prevented. Domestic water supply should be metered. A differential tariff structure is recommended to take care of affordability and financial self-reliance.

2.2 Wastewater collection and treatment must be an integral part of water supply scheme. Provision of piped water supply without organizing the collection and disposal of wastewater introduces more health hazards than help.

2.3 Wastewater needs to be considered as resource and wastewater treatment needs to aim at resource recovery, recycling the treated water.

2.4 Industrial wastewater containing toxic, hazardous and nonbiodegradable wastewater must be kept separate even after treatment from domestic wastewater.

3. Solid Wastes

3.1 Modern management technique needs to be introduced in solid wastes management. Segregation of recycleable materials, degradable materials, non-degradable materials like plastic etc. need to be introduced at the source. Only degradable materials to be taken for making compost to be used as measure and recycleable materials should be returned to proper recipients for recycling. Although plastics in the form of sacs and packaging materials have come to great use, these being non-degradable cause disposal problem.

3.2 Disposal sites chosen for sanitary landfill must be protected against possible leachate that may cause contamination of ground water.

3.3 Mixing of garbage with industrial solid wastes must be avoided if the garbage to be composted for use as manure.

4. Air

4.1 Siting of industrial estates within the town must be done taking into account the wind structure.

4.2 Vehicular exhaust is going to be the major source of pollution of air in metropolitan cities. Control of vehicular exhaust is imperative to improve urban living condition. In this regard urban form and economic gradation would help in reducing air pollution. In economic gradation urban rich are to live near core and urban poor at the periphery. The rich being near to the core, crowing caused by automobile would be almost absent. Mass transportation will be the automatic choice of the poor.

5. Financial Viability

5.1 If the towns chosen as Generators of Economic Momentum (GEMS) must be financially viable in maintaining, augmenting, and expanding the desired infrastructure commensurate town growth. A services of recommendation is listed taking water supply infrastructure as an example. Introduction of financial analysis replacing traditional approach of "allocation-expenditure" is strongly recommended.

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II. INTRODUCTION

The Section is proposed to be named as 'Urban Environment'. Town (500,000 less), cities (500,000 to 1 million), and metropolis (1 million or more) are recognized and thus to be organized as the centres of economic growth. Like any producing centres these settlements would be more efficient if environment is maintained better and conservation is kept in view. Creation of an adequate housing stock and equally adequate, if not efficient, infrastructure are prerequisite to make these settlements productive. But present look to these settlements tells a different story. In most cities in India, specially the metropolitan cities the URBAN POOR are the true builders and planners of the settlements. They build their houses and establish their settlements wherever they can, obviously illegally; on lands where organized developers and builders would not dare to go: on land spaces of any physiography with materials of any description, ignoring all building material norms, building and health codes. The settlements ignore zoning, and subdivision regulations and ultimately the 'Master Plans' adored by the city administrators and planners.

Urban poor should not get all the credit as the true builders and planners of the settlements. Urban rich should also get the due credit. While the urban poor grab whatever land, marginal in nature, is available, urban rich tinkers with it using urban land policy. Urban land policy should be a tool to facilitate optimal use of scarce urban resources; and make land affordable to all shades of users in terms of space and time; it should aim to draw the balance between rich and poor, between private and public interests, between existing citizens and migrants. Handing these decisions over to an appointed board may give the appearance of eliminating 'politics'. But in reality the policy clashes continue behind closed doors, without the marginal impact that the public, including the urban poor, can make. National officials, aid donors, land owners, architects, planners, politicians, financiers, etc., all know how to influence the bureaucracy. They continue to influence the decision-making process and are often members of the Boards or Corporations. In these circumstances the urban poor—not the urban rich—will lose out.

The critics of urban development corporations admit they are useful for overcoming inefficient municipal administration or the problems of outdated boundaries. But, they argue, they cannot be a substitute for responsive elected local government, properly funded, adequately staffed and supported by Central or State Governments. If this point is not taken, the drift away from local government will continue, and it will be the urban poor who will suffer. The direction of development in municipal administration should be downwards as well as upwards.

Whatever the case for a coordinating, overseeing metropolitan agency, there is an equally strong case for developing decision-making and spending power downwards, so that effective public pressure can be brought to bear on elected officials to exercise power and spend money for the good of the community. The World Bank is learning this in Calcutta. Its third major project—Calcutta III, worth 147 million US dollar—'is intended to work in a decentralised political framework in which the revitalised 39 municipalities including the Calcutta Municipal Corporation have began to play a part' (4). The first two projects, Calcutta I and Calcutta II, administered by a tightly centralised CMDA (Calcutta Metropolitan Development Authority), had put a disproportionate amount of investment into the urban core areas at the expense of outlying municipalities.

Land—its use, abuse, control and ownership—is the central problem of the city. Neither capitalist non-socialist societies have solved the problems resulting from competition over land; in both societies some people continue to grow wealthy through their control of land, while lack of land helps to keep others poor. In Bombay, it is reported, that land is misused, under-used and carelessly used. Large private gardens and clubs with extensive open grounds limit the amount of living space in favour of exclusive upper income land uses(1). A conservative estimate would put the amount of surplus land in Greater Bombay at 20,000 hectares (49,000 acres)', according to Colin Consalves of the Meherally Centre there. One family alone owns 2000 hectares (4900 acres) of vacant land, enough land to house most of the city's slum, shanty town and pavement dwellers—more than 3 million people. Three quarters of the city's household lived in one room huts and tenements in 1961(2), and the situation has not improved since then. In 1975, more than a million people lived in squatter settlements or were homeless, and another million lived in substandard accommodation. Very few services—water, sanitation, electricity, etc. were available. The poor man cannot live in Central Bombay because marginal land is not available; they cannot live on the outskirts because of excessive cost of commutation. Squatter settlements and the pavements are their only alternative. An estimate of 1983 suggests that there are 4.5 million people as pavement squatters or slum dwellers making a density of 3000 to 4000 persons per hectare against an internationally accepted norm of 600 persons per hectare (3).

Although the present section deals in urban environment and not on urban land one could not avoid narrating the existing mal-distribution of land as because land as a single component contributes most to the urban environmental degradation. Commerce and trading centre, residential centre, community centre, industrial centre are the generic names of the activities which collectively contribute to the creation of an urban settlement. It is their intricate inter-relationship makes a settlement's environment better or worse, makes a settlement's infrastructure optimal or sub-optimal. Land use delineation armed with legislative measures supported by development control rules such as FSI, Tenement Density (TD) has been the major tool in the hand of planners and administrators for maintaining the intricate inter-relationship. Economic planning let alone ecologic planning has never taken the driving seat in urban planning.

The input to and output from any major urban ecosystem is so global and complex that urbanisation cannot be planned taking urban ecosystem as a model. Thus cotton grown in Egypt may be processed in Bombay based textile mills to produce garments to be marketed in the USA. But it is worthwhile to see what ecologists can contribute to the traditional model which economists have evolved. Interestingly both ecologists and economists have developed models that describe the cause and effect relationships within their respective systems. It seems incredible that ecologists and economists have not shared their ideas yet in-spite of the fact that both study the same phenomena, albeit in different populations. Ecologists study competition between individuals (and between populations) for resources, the growth of populations, and the movement of materials (e.g., water and minerals) in ecological systems. Economists study competition between producers for markets, the growth of production, and the movement of goods and resources within economic systems. In each of these areas, ecologists and economists have models which have entirely different consequences. It may be worthwhile to review and compare the respective models.

Biological growth of all kinds has a characteristic pattern with respect to time. Regardless of the nature of the population—whether birds, bees, or protozoans, or the cells of human beings—its numbers grow slowly at first, then increase rapidly before slowing and levelling off at some equilibrium level at which the cells of the tissue or organisms or the animals in a population, are dying at the same rate that new ones are being formed or born. This is the so-called *steady state*.

The economic model as conceived by businessmen, economists and politicians, however, demands continuously increasing growth, as reflected by the goal of an ever-higher GNP. Undeniably, economic growth improves standard of living and a steady-state economic growth would reduce material wealth and increase unemployment as long as population rose. Given such a set of pre-conditions any decision leader would select the continued growth of economy. But can a four per cent annual increase in GNP, which requires doubling the production of goods and services in 17 years and quadrupling them in 34 years, be sustained.

Such continuous growth curves are not unknown in biological and physical systems. When cells continue multiplying in animal tissues, we call them cancer cells. Their growth also is not indefinite. Indeed, they eventually kill the host organism. In physical systems also, if the chain reaction of fissioning uranium-235 nuclei goes in an exponential manner, instead of producing nuclear power it produces nuclear explosion. If continuous growth causes collapse in biological and physical systems, the continuous economic growth will also meet with similar eventuality. Thus there is a need for equilibrium in economic growth.

Ecological systems are all characteristically cyclic in contrast to linear economic systems. The different biogeochemical cycles are the best examples. Because of the hydrologic cycle water remains unchanged in total volume (quantity), its existence in various forms (solid, liquid, gaseous) may vary between seasons and between places. That's how water is renewable resource, although its availability at the desired place in the desired quality and in the desired quantity may not be. The more familiar carbondioxide cycle may be described as follows. Carbondioxide in the air is incorporated into organic molecules carbohydrates, etc. by photosynthesis in plants. The plants are eaten by animals, which in turn may be eaten by other animals. Carbondioxide is returned to the air through the chemical breakdown of organic molecules through metabolism and decomposition. Once back in the air, the carbondioxide can be incorporated again into new organic molecules. Thus carbondioxide follows a cycle between the atmosphere and living organisms.

Man's complex technological society demands from its environment not only food but also large amounts of raw materials for building houses, factories, cars, television sets and so on. The recyling of these materials are virtually zero. Iron, for example, is mined where it is concentrated in the earth, processed into steel and formed into cars, which after a few years' use are allowed to rust away in some field. The iron in this dispersed state is no longer mineable. A technological ecosystem that does not recycle materials is not likely to be sustained indefinitely.

Ecologists and economics have strikingly different views on the effects of competition in ecosystems and economic systems, respectively. A cornerstone of ecological theory is the 'competitive exclusion principle'. Simply, this principle states that competing species cannot coexist indefinitely. If two species are utilizing a resource that in short supply, one of them will be eliminated as a competitor, either being forced out of the ecosystem or by being forced out to use some other resource. As a result, in communities of animals, ecologists normally find that each species differs from the others in its utilisation of the resources in the environment.

The economists' model of competition is notably different. Competition is supposed to maintain diversity and stability in economic systems; it is assumed that with numerous producers competing for the market, no single producer could control the industry and therefore fix prices and limit the entrance of new producers into the business. In competing for markets, producers would increare efficiency and reduce prices or increase quality at the same price. Either way the consumer benefits. Or so say the optimistic economists, businessmen and politicians.

To the contrary, the evidence suggests that competition in economic systems has the same effect as competition in ecosystems. It reduces the number of competitors. The more efficient or larger producers force the less efficient or smaller out of business or buy them out, resulting in monopoly. This was recognized, practically if not theoretically, in the 19th century in USA. The Congress there passed the Sherman Antitrust Act of 1890, which unfortunately does not eliminate industry dominance by one or a few corporations. The number of competitors continues to become smaller, prices and profits usually increase, and the huge corporations and conglomerates are more difficult if not impossible to manage efficiently. Ninty per cent of the electric motors used by the thermal power producing units in the utility sector for the entire world are produced by one company and the rest of the companies produced the remaining 10 per cent. The above statement is enough to justify the existence of the 'competitive exclusive principle' even in the economic model.

It is, therefore, important that we understand that the current economic model—one that values increasing growth, waste (non-recycling of essential materials) and competition—is inherently unstable. This model violates, either actually or theoretically, ecological principles that have been established by observation: competition results in elimination of competitors; continually growing populations eventually collapse; and ecosystems whose essential materials are not recycled cannot be sustained. There is no reason to believe that economic systems based on principles that bring collapse to ecological systems are immune to a similar fate.

It is true that a steady-state growth of GNP would mean no-growth population-policy. This may be feasible in Europe but not in India at this stage. But the new economic system must demand the recycling of as much as possible of those materials we now call waste. Even industry should be set up in clusters so that waste materials of one industry becomes the raw materials of the other industry as we see in ecosystems. Such environmentally compatible industrial clusters would result in minimisation of waste materials. As an example, phosphatic fertilizer industry produces phosphogypsum as waste materials, while cement industry requires gypsum. It is obvious choice to put these two industries nearby so that the resource is maximally used in products leaving a bear minimum as waste residue. To avoid ecologic disaster we cannot allow our cities to grow in space (spatial spread) and size (population) indefinitely. On one hand we cannot deny the migrants to go to the metropolis on the other hand we need to curb the growth of the metropolis. Probably polynodal cities if evolved by looking more carefully what the 'nature' has to offer may bring the harmony between pressure to grow and limit to growth. What we need is to alter the present mal-distribution of population (as depicted in Figure 1, whose looks similar to our age group versus population in the age-group distribution) to a more balanced one (see Chapter 1 of Interim Report).

Urban planners are scared to talk about land use planning which seems frozen once conceived. 'They were criticised because the land allocation, in the master plan, is primarily based on population forecast and projection of some economic activity in terms of employment derived from population forecast, 'as reported in the Chapter on—Urban Planning at the City Level: Vol. II—Development Options, Part II. The City (page 11-13) at page 13, the report mentions 'If the urban planning is to make a positive contribution to our national development it cannot continue to remain a sterile form of activity. It is necessary, therefore, to shift the present emphasis on land use planning to that of guiding very complex, inter-related processes of social and economic change'. 'A precondition to this is the formulation of urban (city) development objectives in precise terms to provide appropriate guidance for land use planning and regulations. They must be described in sufficient to inform the urban planner as to the role of industry, of transportation facilities, of squatter settlements, and of other city phenomenon as generators of urban productivity'. It means the existing urban planning was practised without knowing the whole and hence the conflict and also the criticism against frozen land use pattern. In nature all living systems are designed taking spatial and functional factors together. Even the human being has all the organs placed at predetermined locations with preassigned functions. Thus the brain is placed within the skull, the heart and lungs integrated at the central torso providing circulation to food carrying fluid, the blood with its self cleansing mechanism within lungs and kidney. The spinal chord linked to the lower and upper limbs from the skeletal. The form remains the same since birth till death, all that alters is the dimension. On attaining adulthood the steady state condition is reached. If nature has a logic why not we. Why not we look into the shape of the thing to be and works towards that. This would bring less chaos if not harmony in the urban life. Imagine the liver which is planned to be at the left of the abdomen is shifted to the right and then to the back, and finally near the brain as the man grows from childhood to adulthood. Evolutionary process is recognized to be aiming towards optimisation and it has rejected such displacement of a functional organ from place to place with age. Then how can our urbanization be optimised if it does not aim towards a form.

We wonder what is defined to-day as Bombay metropolitan, Madras metropolitan or Calcutta metropolitan area will remain that way for years to come. How far this administrative agglomeration is functionally optimal is anybody's guess. This agglomeration has failed to evolve either a pattern or a logic. These are truly agglomeration of several municipalities, notified areas, village panchayats and so. As a result no one knows how these metropolis would shape up. No laws of nature can define the growth of Delhi, which is made more complicated by the push and pull of several neighbouring States such as U.P., Haryana and Rajasthan. NOIDA of U.P., Faridabad of Haryana, someday Alwar of Rajasthan would be contiguous to Delhi without having any functional relationship, except alliance of conveniences of a limited few. As a result already appalling infrastructure is put to more load, recycling as a concept cannot be thought out, undefined mixture of land use deteriorates the urban environment.

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1. Nigel Harris: Economic Development, Cities and Planning: case of Bombay (OUP 1978) p. 32.
2. op. cit. p. 33.
3. India Today, 15 Nov., 1983: City on the Brink pp. 54-62 at p. 56.
4. Mc Auslan, P. Urban Land and Shelter for the Poor. Earthscan Paper Back. International Institute for Environment and Development.

III. STATUS

Although water, air and land constitute the three major components whose quality indicates urban environment, any further discussion on land is excluded in the present section. Discussion on solid wastes is included.

Water Supply and Sanitation

Historically the Environmental Hygiene Committee (1948-49) appointed by the Union Government recommended for the first time specifically a comprehensive plan to provide water supply and sanitation facilities for 90 per cent of the population within a period of 40 years. No concerted measures were taken to implement their recommendations. Later on during 1954 the Union Health Ministry announced the National Water Supply and Sanitation Programme as part of the Health Schemes under the Plan, and made specific provisions to assist the States in the implementation of their urban and rural water supply and sanitation schemes.

Since the Third Development Plan (1961-66) the percentage of sector expenditure to total development outlays has been increasing from a modest 1.23 per cent to 3.84 per cent during the Sixth Development Plan (1980-85) (Table 1).

TABLE 1

Development Plans Outlays/Expenditures and Allocations to the sector

Development Plan			Total Plan Outlay/ Expenditure[1]	WS and S Sector[1]	
			(Rs. crores)	(Rs. crores)	Percentage of total
Third	(1961-66)	.	8576.5	105.7	1.23
Annuals	(1966-69)	.	6625.4	102.7	1.55
Fourth	(1969-74)	.	15782.5	458.9	2.91
Fifth	(1974-79)	.	39426.2	1091.6	2.77
Annual	(1979-80)	.	12176.5	387.6	3.18
Sixth	(1980-85)*	.	110000.0	4228.0	3.84
	TOTAL	.	192587.1	6374.5	3.31

[1] Government of India, Economic Survey 1982-83

* Updated.

On first April, 1981, 33 million or 22 per cent or urban population was assessed to be without safe water supplies; and 108 million or 73 per cent of the urban population was without an adequate and sanitary means of excreta disposal. Against this status the following Decade (International Water Supply and Sanitation Decade) targets to be reached by March 1991, was agreed to by the Central and State Governments (Table 2).

TABLE 2

Decade Targets

Sector Category		Coverage	Level of service
Urban Water Supply	.	100%	Piped water supplies in all communities, where feasible; demand range 70-250 lpcd, average 140 lpcd. Standposts in fringe areas, if necessary at strategic locations; demand range 25-70 lpcd, average 40 lpcd.
Urban Sanitation	.	80%	100% coverage for Class-I cities with sewerage and sewage treatment facilities; low cost sanitation methods in other towns. Overall coverage of 80% in all cities and towns.

At the end of Phase I of the Decade Programme and the Sixth Development Plan, 31 March 1985, sector position in water supply and sanitation are shown on a country—wide basis in Table below.

	Population Served (in millions)							
	1981		1985			1990		
Category	Popln.	%	Popln.	%	Diff. 81-85 +/- %	Popln.	%	Diff. 81-90 +/- %
Water Supply	115.48	72.3	127.23	72.9	+0.6	169.96	86.4	+14.1
Sanitation	40.03	25.1	49.56	28.4	+3.3	87.91	44.7	+19.6

Source : National Master Plan, India International Drinking Water Supply and Sanitation Decayed, 1981-1990, MID-DECADE REVIEW, Min. of UD, GOI, Oct. 16-17, 1985.

As a result of substantial sector funds investment in programmes of rehabilitation, augmentation and improvement in the quality of rendered service and, at the same time, this sector maintained a pace in additional coverage in water supply even with population growth and in sanitation in excess of such growths. The percentage of coverage as shown in Table above for 31 March 1990 may appear feasible provided the desired financial allocation is made in the Seventh Development Plan (1985-1990). The revised goal of the Decade as set by the Government of India is given in Table below.

Revised Goals	Population Target in per cent	
	From	To
Water Supply	100	90
Sanitation	80	50

During the period 1985-1990 increase in water supply and sanitation is targetted at 14 and 20 per cent respectively (Phase II of the Decade Programme). While only 0.6 and 3.3 per cent increase was achieved during 1980-85 (Phase I of the Decade Programme). Obviously the Phase II target seems too ambitious on two counts: (i) past performance record and (ii) financial outlay during Seventh Development Plan. Only one-third of the estimated cost is provided. The sectoral outlay in proportion to the total outlay for Seventh Development is 3.65 per cent (Rs. 6,570 cr./Rs. 180.000 cr.) which is even lower than 3.84 per cent which was actually outlaid during the Sixth Development Plan (Rs. 4228 cr./Rs. 110,000 cr.).

The pattern of investment during the last 3 decades since 1960 in the urban water supply and sanitation suggests that the gap between desirable infrastructure and existing infrastructure may continue to remain the same if not widen. Clearly, if India is to create the urban infrastructure, so desprately needed, the idea of a subsidy to the urban sector from the non-urban sector must be abandoned and investments in this sector together with urban services must be priced at levels where urbanisation become a meaningful economic activity.

This brings us to the review of existing systems of financial analysis and fixing taxes and charges for infrastructural services rendered to the people. Before we get into the question of how to make the infrastructural services self-sustaining it is desirable to look into the status of other related components such as solid wastes management and urban air quality management and the related area of land use.

Solid Wastes

Data on municipal solid wastes from 40 out of 151 Class I cities (population 100,000) indicate that the average per capita waste generation rate is 0.27 ± SD 0.11 kg/capita/head (see Table 4). The waste is found to contain in average 41.24 ± SD 12.59 per cent of compostable matter (see Table 3) and the organic matter on dry weight basis is 25.68 ± SD 7.77 per cent (see Table 4). Available data from urban centres having less than 1 lakh population indicates per capita waste at 0.27 ± SD 0.08 kg/head/day (see Table 6). The waste is found to contain 26.18 ± SD 14.49 per cent compostable matter (see Table 5) and the per cent organic matter on dry weight basis is 19.03 ± SD 5.09 (see Table 6).

Although the above observations pertain to the period of early eighties the per capita production of solid wastes at the rate of 0.27 kg/capita/day would remain valid for a decade or two. What would change is the distribution of different components in the total mix of solid wastes. Predominance of plastics and other packaging materials will make the compostable fraction to shrink. But this change in characteristics is reasonably slow. The cost of collection is increasing at a phenomenal rate and requires professional management systems which no municipalities including Bombay and Delhi Municipal Corporations are capable of coping with.

TABLE 3

Some Physical Characteristics of refuse from Class I Cities (All values in % by wet weight)

Sr. No.	Name of City	Paper	Plastics	Rags	Metals	Glass	Total Compostable Matter
1	2	3	4	5	6	7	8
1	Aurangabad	4.51	0.28	3.36	0.52	0.67	36.30
2	Bangalore	1.91	0.32	0.75	0.32	0.21	53.83
3	Bikaner	1.00	0.52	3.59	0.14	0.53	14.72
4	Calicut	6.00	1.75	2.02	0.38	0.06	66.05
5	Coimbatore	3.08	0.13	4.24	0.54	0.40	35.24
6	Gorakhpur	1.97	0.62	3.68	0.31	0.18	34.92
7	Gwalior	4.58	0.65	2.02	0.5[illegible]	0.38	30.03
8	Jabalpur	2.01	0.69	1.68	0.39	0.36	39.87
9	Jodhpur	1.43	0.31	3.32	0.21	0.15	19.81
10	Kurnool	1.07	0.28	1.10	0.24	0.08	40.57
11	Madurai	7.81	1.44	4.23	0.70	0.52	26.51
12	Patna	3.00	0.20	3.16	0.27	0.15	23.24
13	Raipur	1.83	0.66	1.31	0.44	0.23	38.44
14	Rajkot	1.44	0.53	1.35	0.50	0.14	55.38

TABLE 3—*contd.*

1	2	3	4	5	6	7	8
15	Sangli	3.04	0.35	2.13	0.21	0.37	51.24
16	Surat	3.03	1.01	2.22	0.37	0.28	44.26
17	Tiruchirapalli.	5.57	1.62	6.36	0.29	1.28	45.99
18	Trivandrum	3.62	0.93	1.43	0.38	0.14	71.78
19	Udaipur	2.38	0.28	3.18	0.16	0.57	31.03
20	Vijayawada	1.47	0.16	1.31	0.14	0.27	31.94
21	Ahmedabad	3.02	0.84	4.11	0.42	0.23	49.30
22	Allahabad	3.82	0.69	2.61	0.56	0.39	44.50
23	Baroda	4.78	0.29	3.32	0.60	0.26	39.25
24	Bhopal	7.71	0.55	5.38	0.56	0.75	38.67
25	Chandigarh	6.17	0.33	5.24	0.22	0.21	34.74
26	Delhi	6.29	0.85	4.70	1.21	0.57	35.42
27	Hyderabad	4.81	0.84	3.16	1.23	0.93	39.45
28	Jaipur	3.03	0.80	5.98	0.61	0.39	25.89
29	Kanpur	2.97	0.63	2.77	0.39	0.38	41.09
30	Madras	7.85	0.88	4.86	0.95	0.97	47.87
31	Tatanagar	3.48	0.45	2.43	0.46	0.33	27.38
32	Calcutta	3.18	0.65	3.60	0.66	0.38	40.38
33	Howrah	4.62	0.71	2.75	0.16	0.29	34.99
34	Gauhati	..	0.18	..	0.68	0.28	50.59
35	Nagpur	..	0.39	4.07	0.65	0.58	41.79
36	Kota	..	0.27	2.70	0.13	0.22	48.76
37	Pune	8.74	0.72	1.63	..	0.58	67.64
38	Thane	5.5	1.00	2.25	0.30	0.25	53.00
39	Ajmer	1.44	1.02	..	0.31	0.40	38.17
40	Bombay	4.89	2.92	2.40	2.46	0.72	59.70
	Mean	4.14	0.69	3.05	0.50	0.40	**41.24**
	SD±	2.73	0.52	1.40	0.42	0.26	**12.59**

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TABLE 4

Some Chemical characteristics of refuse from Class I Cities (All values except moisture in per cent by dry weight & moisture in per cent by wet weight)

Sr. No.	Name of City	Moisture	O.M.	N_2	P_2O_5	K_2O	HCV in Btu/lb	Per capita kg/day
1	2	3	4	5	6	7	8	9
1	Aurangabad	18.23	20.52	0.58	0.75	0.51	1087	0.42
2	Bangalore	33.14	20.18	0.54	0.81	1.11	1308	0.31
3	Bikaner	15.43	11.93	0.42	0.45	0.78	927	0.29
4	Calicut	35.44	25.44	0.57	0.83	0.51	1521	0.13
5	Coimbatore	19.78	25.85	0.65	0.69	1.07	1941	0.30
6	Gorakhpur	13.25	16.18	0.57	0.65	0.72	1410	0.20
7	Gwalior	18.85	22.42	0.72	0.79	1.05	1684	0.27
8	Jabalpur	16.60	25.35	0.64	0.65	0.77	1949	0.29
9	Jodhpur	9.00	15.53	0.53	0.57	0.85	1177	0.19
10	Kurnool	24.75	29.26	0.92	0.73	1.06	2279	0.19
11	Madurai	25.80	25.52	0.82	0.69	0.98	1949	0.38
12	Patna	13.89	14.14	0.55	0.77	0.74	1136	0.48
13	Raipur	13.60	34.14	0.35	0.68	1.19	2590	0.31
14	Rajkot	18.06	24.79	0.63	0.52	0.56	1584	0.07
15	Sangli	20.20	27.49	0.69	0.65	0.53	1664	0.22
16	Surat	18.40	22.90	0.66	0.70	0.61	1739	0.15

TABLE 4—*contd.*

1	2	3	4	5	6	7	8	9
17	Tiruchirapalli	42.48	31.71	0.93	0.71	1.07	2522	0.21
18	Trivandrum	26.91	26.49	0.82	0.49	0.49	2007	0.12
19	Udaipur	15.30	27.58	0.84	0.78	1.04	1950	0.14
20	Vijayawada	17.89	24.23	0.64	0.42	0.69	1811	0.17
21	Ahmedabad	23.43	25.18	0.41	0.53	0.52	1772	0.24
22	Allahabad	16.55	16.55	0.59	0.54	0.67	1310	0.20
23	Baroda	21.89	21.15	0.64	0.57	0.53	1417	0.29
24	Bhopal	27.74	30.71	0.69	0.65	0.99	2331	0.26
25	Chandigarh	26.33	23.64	0.53	0.50	0.56	1824	0.35
26	Delhi	26.98	25.42	0.60	0.71	0.60	2187	0.21
27	Hyderabad	11.39	25.91	0.59	0.59	0.61	2029	0.33
28	Jaipur	21.05	15.74	0.44	0.78	0.51	945	0.28
29	Kanpur	18.56	21.01	0.55	0.68	0.64	1278	0.55
30	Madras	38.63	29.71	0.57	0.48	0.76	1925	0.32
31	Tatanagar	15.61	14.80	0.39	0.67	0.43	1109	0.45
32	Calcutta	41.11	35.24	0.55	0.58	0.41	2709	0.50
33	Howrah	..	21.28	0.54	0.85	0.55	1548	0.59
34	Ganhati	19.40	23.50	0.65	0.61	0.60	2030	0.24
35	Nagpur	22.46	29.44	0.65	0.76	0.66	2122	0.22
36	Kota	10.00	45.75	0.87	0.88	0.74	2955	0.25
37	Pune	38.51	40.92	0.82	0.60	0.54	..	0.23
38	Thane	20.00	40.00	0.57	1.10	0.75	2700	0.22
39	Ajmer	10.00	40.99	0.80	0.43	0.59	2436	0.24
40	Bombay	50.60	23.60	0.93	0.89	0.34	2417	0.49
	Mean	22.52	**25.68**	0.64	0.66	0.71	1827	**0.27**
	SD ±	9.80	**7.77**	0.50	0.18	0.22	525	**0.11**

TABLE 5

Some physical characteristics of refuse from Class II cities (All values in % by wet weight)

Sr. No.	Name of City	Paper	Plastics	Rags	Metals	Glass	Total Compostable Matter
1	Anantapur	0.63	0.15	0.27	0.43	0.12	44.59
2	Raurkela	3.52	1.31	4.46	1.18	0.20	31.19
3	Durgapur	2.30	0.38	2.54	0.36	0.26	14.54
4	Karimnagar	0.94	..	0.42	0.76	0.36	14.39
	Average	1.85	0.60	1.92	0.69	0.23	**26.18**
	Standard Deviation	1.33	0.62	1.99	0.38	0.10	**14.49**

TABLE 6

Some chemical characteristics of refuse from Class II cities (All values except moisture on day weight basis & moisture on wet weight basis)

Sr. No.	Name of City	Moisture	O.M.	N_2	P_2O_5	K_2O	HCV in BTU/lb	Per capital kg/day
1	Anantapur	12.72	23.87	0.67	0.53	0.71	1603	0.18
2	Raurkela	17.28	22.13	0.54	0.86	0.52	1741	0.28
3	Durgapur	10.48	17.60	0.43	0.61	0.44	1215	0.37
4	Karimnagar	12.00	12.5	0.54	0.60	0.48	1325	0.25
	Average	13.12	**19.03**	0.54	0.65	0.54	1471	**0.27**
	Standard deviation	2.93	**5.09**	0.10	0.14	0.12	243	**0.08**

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Factors Aiding Refuse Production

Cultural Heritage.—The attitude of loss of interest in the ownership of residues of resource-utilisation is greatly influenced by the cultural heritage of a nation. Indians, through ages, have developed the habit of conserving residues. On many occasions the owner preserves them even not knowing what to do with them. In any dwelling the space reserved as the storage is usually packed up with staff like leather suitcases, brass-wares, furnitures, cardboard boxes all in broken condition and beyond repair. Let technological advancement not wash out this valuable conservative attitude inculcated in us through ages. Our ladies never throw away torn garments and clothings but save them only to exchange with peddlers peddling brass and stain-less steel utensils.

Technology.—Although with the aid of technology the resources and even the residues utilised and recycled; more often than not, technology aids to the generation of wastes. Two examples are cited to indicate the waste generating attitude of technology. The ball-point pen came as a replacement of ink-filled pen only to add millions of plastic refill tube with brass-point in the list of solid wastes. The second case in point is the bulk of packaging materials mostly constituting some form of paper. A shirt purchased from a departmental store today brings home along with it a pasteboard backing, a collar wrap, a plastic bow, a price tag, a polythelene sac, a hardboard box and wrapped up in a brown paper sac sealed with two stapples. While, the low-income variety of the same shirt bought from a shop encroaching a side-walk is wrapped up till today in one-quarter of a newsprint sheet with one-foot long tying rope.

Refuse Characteristics

It should then be recognised that the level of technology, the economic standard, the cultural heritage are the major factors influencing the qualitative and the quantitative character of municipal refuse. Climate also influences significantly. A comparative presentation of municipal refuse as obtained in Calcutta and Chicago is illustrated in Table 7.

TABLE 7

Municipal refuse of Calcutta and Chicago

Constituents	Per cent by Weight	
	Calcutta	Chicago
Compostable	47	75.3
Leaves, wood, grass, etc.	13	..
Vegetables and food waste (garbage)	16	2.3
Hay, straw, rags, paper (Lignocellulose)	13	73.0
Green coconut shell	5	..
Non-compostable	53	24.7
Metals	0.7	8.0
Plastics etc.	0.6	9.0
Glass, ceramic, earthenware	7.0	6.5
Other miscellaneous materials	1.2	0.7
Ash, unburnt coal, earth	43.5	0.5
	100	100

The major constituents for Chicago refuse is paper and the rest is mostly metals, plastics, glasses and ceramics. Separating the latter materials, the paper which constitutes 73 per cent by weight of total municipal refuse, may be disposed using incineration. The municipal refuse of Calcutta contains paper only 13 per cent by weight, the remaining compostable fraction is mostly of plant origin constituting high moisture content and of low calorific value. It would, therefore, be unwise to incinerate the Calcutta refuse. But the compostable and earth and earth-like material constitute (47 + 43.5 + 7.0) = 97 per cent of the total refuse indicating sanitary land-fill or composting as the choice for disposal.

Refuse Handling

The entire affair of refuse handling comprises three distinct tasks:

(i) Collection:
   (a) household handling
   (b) transfer to roadside vats or direct to collect trucks.

(ii) Transportation:
   (a) collecting from vats or from house
   (b) routing.

(iii) Disposal:
   (a) storage
   (b) handling prior treatment
   (c) treatment
   (d) residue handling.

Rational Approach to Planning

The planning of the refuse collection system is essentially the process of evaluating various ways of utilizing men and machines to find the most efficient arrangements. The determination of optimal combination of methods and equipment involves a thorough understanding of local conditions, a wide knowledge of refuse collection activities and the application of the engineering economic. It must also be appreciated that there are no real substitutes for such engineered and analytical planning, and shortcuts may result in sacrifices costing many times the possible savings in planning expenses as we find in many cities in India.

'One characteristics of the new family of management techniques is that they are designed to integrate, and to consider systems as a whole, rather than to take jobs apart and analyse the parts—the approach which was the basis of mass production industrial and engineering techniques. There is an increasing requirement for specialists, and production (engineer) manager must be able to direct these experts and not be overwhelmed by them'. In analysing compleximetric problem of Solid Wastes Management for solving over all problem modern complex procedures are desired to be adopted by the planners.

Transportation

Collection, transportation and disposal are the three facets of Solid Wastes Management. Transportation is very vital because of two reasons; (i) if it fails, the whole system fails, (ii) it is the most expensive Part; transportation cost may be as high as 70 per cent of the total cost of refuse handling considering both capital and operational cost.

Let us examine the major elements in transportation. It comprises of vehicles, operating crews on the vehicles as well as at the workshops, and routing through a number of collecting vats upto the disposal site. Whenever we say the optimization of transportation system we mean how to get municipal refuse removed from the collecting vats at lowest possible costs. Thus there are two objectives:—(1) daily removal of municipal refuse to the disposal site, and (2) to do this job the capital as well as operating cost must be lowest. To achieve these two objectives we need to play with various transportation (Mathematical) models. Such models examine the following factors:

type of vehicles

capacity of vehicles

optimization of number of crews on the vehicles

optimal number of vehicles that must be on the road.

This is all about vehicles. Then comes routing of the vehicles which mean, through which route a particular vehicle would travel collecting refuse from vats and finally reach the disposal sites. Along with it workshop should be rationalised and optimized both for capacity and for administration.

Model Result

Preliminary examination by fitting observed Calcutta data to existing transportation model reveals some interesting facts:

Contrary to our common belief increase in number of trips per vehicle reduces efficiency and increases cost per tonne of solid waste cleared,

Increase in carrying capacity of vehicles results economy.

To cite an example of the notional belief that the size of the fleet of garbage carrying trucks may be reduced by allowing more trips per truck the proposal for Baroda may be given. 'In Baroda one truck can serve 35,000 people per shift and for 2 shifts in a day it served 70,000 people. Presently the city is having 9 trucks and 14 trips are done each day (9 in day time and 5 in the night), (5). Fourteen trips in 24 hours, with atleast 3.5 hour break, provide 1 hour and 28 minutes (say 1.5 hour) per trip. During which time the truck is to load 70,000 × 0.5 (kg/c/day)/14 = 2.5 tonnes of garbage. By any time-motion study it would be seen that this is not feasible. What ultimately achieved is the number of trips and not the total lifting of the estimated 2.5 tonnes of garbage. It is not surprising, that six per cent of the total revenue of Baroda Corporation is spent on solid wastes management. Pune producing 525 tonnes of garbage a day employed 45 numbers of 1.5-tonne trucks who shift 375 tonnes of garbage a day making 5 to 6 trips a day (total trips 250). Pune thinks a total fleet of 55 nos. of 1.5-tonne truck would do the job. It would require each truck to make 6 to 7 trips a day (5).

This type of adhoc decision needs to be replaced by more rational investigation which is so common in the area of operational research study. Interestingly when the collection and disposal of Pune city garbage was privatised the transportation and disposal cost indicated reduction from Rs. 70 to Rs. 42 per tonne of garbage hauled (5).

Disposal of Solid Wastes

Most towns, cities, even metropolis practice open dumping of garbage in low lying areas. Delhi has an extensive area under sanitary land fill. The disposal cost (excluding collection and transportation) for sanitary land fill is about Rs. 10.00 per tonne, while composting cost is about Rs. 250 per tonne in Delhi. Obviously sanitary landfill remains the choice so long land is available within economic haul distance. Most metropolis would loose that advantage within foreseeable future. Hence mix of disposal needs to be attempted. Delhi has installed the first incineration plant handling 300 tonnes a day designed to produce 3.5 megawatt a day. Considering low alorific value of Indian city garbage (1500 k cal per kg of garbage) the efficacy of the incineration plant of Delhi needs to be studied closely. Delhi has also installed a compost plant to handle 150 tonnes of garbage a day (5).

During the Fifth Development Plan (1974-79) the Union Government provided substantial back up support in terms of fund and expertise for installation of compost plant (mechanical) in seven cities in India (Bombay, Bangalore, Baroda, Calcutta, Delhi, Jaipur and Kanpur). All these plants are in the range of 150-300 tonnes/day and started operating between 1977 and 1980 and operated either by concerned State Agro Industrial Corporation or Municipal Authorities. The land provided between 3-5 hectares with Calcutta having smallest area of 2 ha. and Bangalore the largest area of 9.2 ha. National Environmental Engineering Research Institute investigated on behalf of the Union Government the performance of these plants. Several significant process modifications are suggested and these are:

(i) no magnetic separator;

(ii) no artificial aeration;

(iii) mixing and size reduction should follow composting by windrowing;

(iv) turning equipment for windrowing should be standardized;

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5 Chaudhuri N. Mojumdar, A. Neogi S., 'A Monograph of Refuse Handling, Transportation and Disposal of Calcutta' Jour. IPHE, India, Vol. 4, No. 3. p. 79-88.

Proper trained personnel and professional marketing effort for sales of compost and rational selling price of compost considering this as a society oriented commercial venture were also suggested (6).

Compost as a Method of Disposal & others

Compost contains on an average 1 per cent each of NPK. Hence every tonne of compost will contain 10 kg each of N, P and K. This NPK when used will result in saving of equivalent amount of chemical fertilizer, besides providing other beneficial effects such as increase in water retaining and ion exchange capacity, increased buffering capacity and micronutrients. Use of compost, besides saving in use of naptha or coal, results on reduced consumption of energy.

Production of biogas from incineration of waste would result in making available an additional energy source. Large size plants have yet to come in this area.

Use of secondary materials such as reclaimed paper for hardboard manufacture or broken glass for glass manufacture are known to consume less energy during manufacture and also cause less pollution. However, the products are often not able to compete with the products manufactured from virgin basic materials either because the costs are too high or rates of return on investment are too low to be preferred alternatives under conventional accounting practices. It is because the social and environmental cost are often ignored and credit is not given for energy saved and pollution avoided.

Collection of Garbage

In the house to house collection system it is possible to carry out an efficient separation of the material at the source itself provided the citizens are sufficiently motivated and educated to the benefits of this action. In the community bin system that is normally used in India, it is difficult to achieve, though some civic agencies have devised means for doing this to some extent, e.g., in Baroda the dust bins have two compartments. In one compartment the food waste and other organic materials are stored while in the other compartment, inorganic constituents are stored. The organic material is removed every day and taken to the compost plant while the inorganic part is removed twice a week. This system helps in reducing cost of resources recovery and transportation when the processing method is already decided. As the waste contains a large variety of constituents, they can be reclaimed.

Urban Air Quality

Population pressure leading to unplanned urban growth, substandard living environment in the form of slums, traditional intermixing of land use between residential, commercial, and industrial, ill-maintained. over-used and over-aged private and public transport collectively contribute to air pollution in metropolis and cities and also in towns which are undergoing major growth.

Background

The early work in the air quality monitoring was started by the Research and Educational Organisations. All India Institute of Hygiene and Public Health conducted the first ambient air quality survey of Calcutta during 1956-59. In 1965 the National Environmental Engineering Research Institute (NEERI), then known as Central Public Health Engineering Research Institute (CPHERI) conducted short-period survey in selected large cities. Since then need-based measurements were conducted in some cities. Two such examples are the Bombay network sponsored by Greater Bombay Municipal Corporation between 1971 and 1973 and the Calcutta network sponsored by Calcutta Metropolitan Development Authority between 1971 and 1975. Such sporadic efforts culminated in routine measurements through the establishment of air quality. Monitoring network since 1970. The ambient air quality network covering 10 cities: Ahmedabad, Bombay, Calcutta, Cochin, Delhi, Hyderabad, Jaipur Kanpur Madras, and Nagpur is maintained by NEERI, is the only network whose coverage in time and space is reasonable. In recent time the Central Pollution Control Board with the coordination of State Pollution Control Boards initiated ambient air quality network in Agra, Anapara (Near Rihand Reservoir where large number of super thermal power stations are proposed) in U.P., Delhi, Haldia and Howrah in West Bengal, Kota (Rajasthan), Surat (Gujarat) since 1984-85. In each town there are three or five ambient air quality monitoring stations.

Source Inventory

Inventory of sources and emitted pollutants is available for three cities: Bombay, Calcutta and Delhi (Table 8). The relative contribution from four specific generic sources are listed in Table below. Attention to such inventory of sources of pollutants is needed to aid identification of sector that require control on a priority basis. All metropolis, cities, and towns with growth potential need to prepare such inventories at 5-year interval, besides operating ambient air quality monitoring.

TABLE 8

Relative contribution of air pollutants in per cent from specific sources and interse priority for control

Sources/Cities	BOMBAY	CALCUTTA	DELHI
Domestic (i/c. commercial and Institutional)	3.9 (Pri 4)	13.4 (Pri 3)	8.8 (Pri 4)
Power	12.2 (Pri 3)	31.0 (Pri 1)	27.4 (Pri 2)
Industrial	43.9 (Pri 1)	26.5 (Pri 2)	10.3 (Pri 3)
Transportation .	40.0 (Pri 1)	29.1 (Pri 2)	53.6 (Pri 1)

(Pri 1) : Priority I

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6 Proceedings on Workshop on Solid Waste Management, Government of India, Ministry of Urban Development, New Delhi, January 16-17, 1987.

Present Status

Seven out of 10-city ambient air quality network have 5-year long data for the three pollutants suspended particulate matter (SPM), Sulphurdioxide (SO_2) and Oxides of Nitrogen NO and NO_2 NO_x at atleast three characteristic locations defined as (i) residential, (ii) commercial, and (iii) industrial. Relevant statstical analyses of the data suggest that Bombay, Delhi and Kanpur indicate significant variation in concentration of all the 3 pollutants between characteristic locations. But Madras, Calcutta, and Hyderabad indicate significant variation in concentration in one out of the 3 pollutants between characteristic locations: SPM in Madras, SO_2 in Calcutta, and NO_x in Hyderabad. Jaipur indicates significant variation in concentration in two pollutants: SPM and NOx. It seems justified to retain different ambient air quality limits for different land use even within a city as seen for Bombay, Delhi and Kanpur. It may not be so distinct in the other seven cities because of prevalence of mixed land use. Even then different ambient air quality limits for different land use within a city is desirable otherwise all people will be exposed to the same concentration of pollutants regardless of the nature of occupation. While encouraging more mixed land use the issue related to ambient air quality must be kept in view.

Increasing trend is observed for SO_2 in commercial and industrial area of Calcutta, for SPM in residential and commercial area of Kanpur, for SPM in commercial area of Jaipur and for NO_x in commercial and industrial area of Jaipur. Decreasing trend observed for SO_2 in all the characteristic areas of Hyderabad. In other cities and characteristic areas the pollutant showed random variation between the year.

There is distinct classification of the cities in terms of the ambient air quality which is expressed in Suspended Particulate Matter (SPM).

Suspended Particulate Matter (SPM)

300 and above .	Calcutta, Delhi, Jaipur, Kanpur.
200 to 300 .	Ahmedabad, Bombay, Nagpur,
200 and below .	Cochin, Hyderabad, Madras. Vishakapatnam.

Sulphur Dioxide (SO_2)

60 and above .	Calcutta.
40 to 60 .	Ahmedabad, Bombay.
20 to 40 .	Cochin, Delhi, Hyderabad, Vishakapatnam.
20 and below .	Jaipur, Kanpur, Madras, Nagpur.

Oxides of Nitrogen (NOx)

30 to 40 .	Delhi.
20 to 30 .	Ahmedabad, Bombay, Calcutta.
10 to 20 .	Cochin, Hyderabad, Jaipur, Kanpur, Madras, Nagpur, Vishakapatnam.

It seems that the presently prescribed ambient air quality limits need to be revised (Table 9).

TABLE 9

Prescribed Ambient Air Quality Standards

Area	Category	Concentration in microgramme of pollutants per cubic meter of ambient air			
		SPM	SO_2	CO	NOx
A	Industrial and Mixed-Use	500	120	5000	120
B	Residential and Rural	200	80	2000	80
C	Sensitive . .	100	30	1000	30

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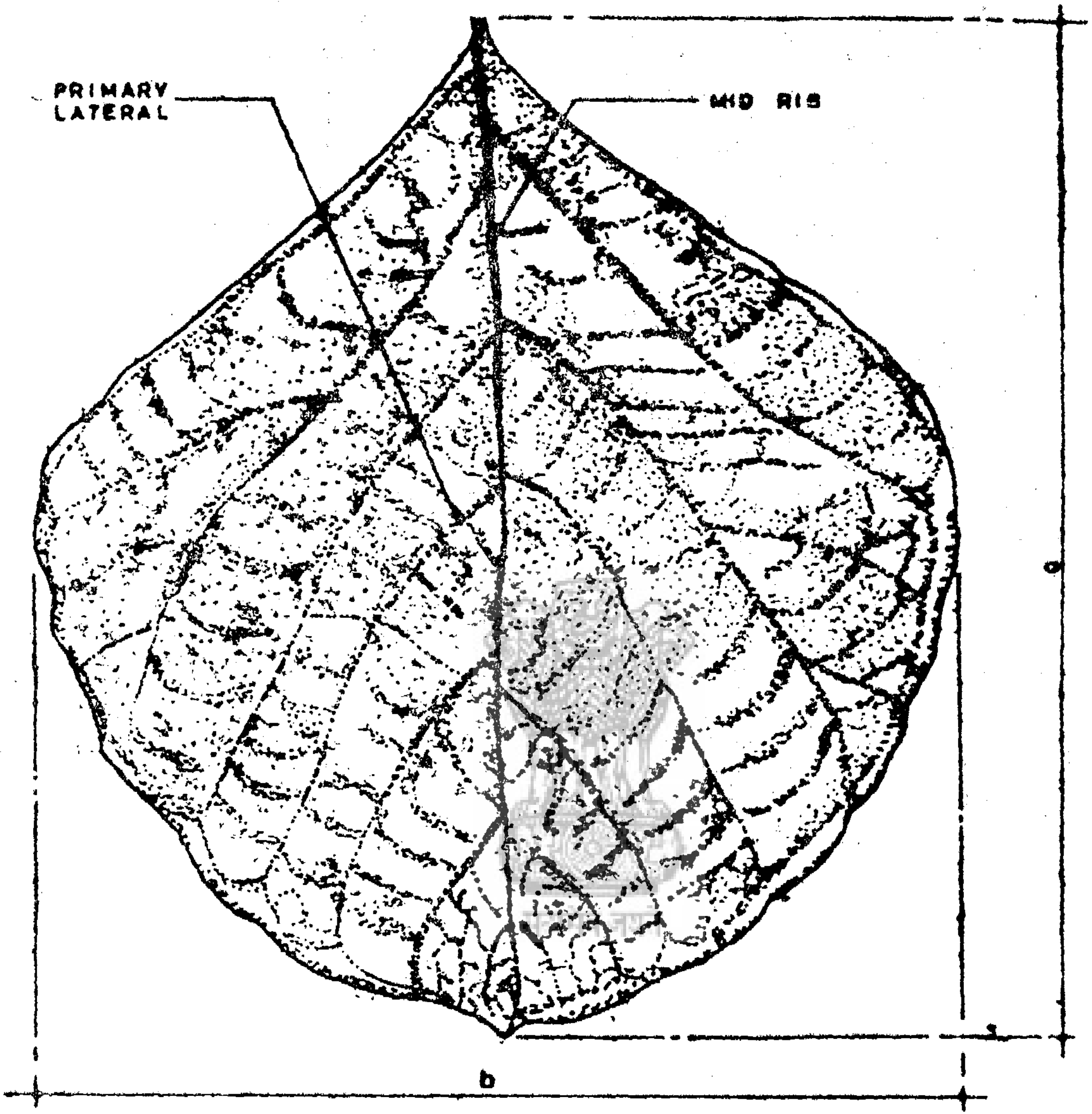

Bulea monosperma

FACTORS	FOR 10 DIFFERENT PLANT SPECIES	FOR CIRCLE
AXIS RATIO a/b	1 TO 2	1
FORM FACTOR $P/\sqrt{A}$	3·5 TO 4 5	3 6
AREA COEFFICIENT A/ab	0·7 TO 0·84	0·79

A - AREA
P - PERIMETER

FIG.-1: VENATION NETWORK OF A PLANT LEAF

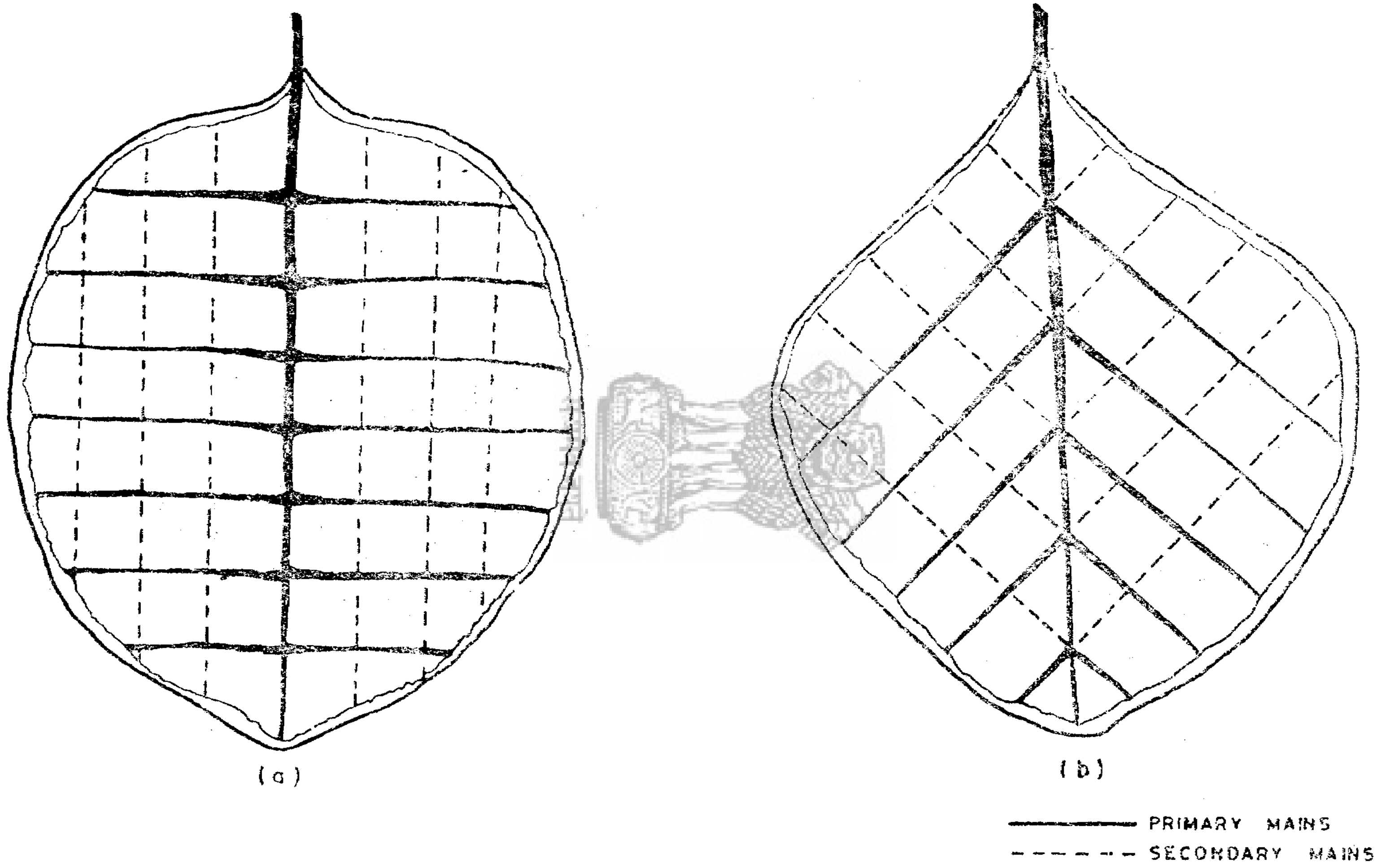

FIG.-2: IDEAL CONFIGURATION AND LAYOUT OF NETWORK FOR LEAST COST DESIGN

IV. CORRECTIVE OPTIONS

Urban Form: Modular vs. Monolithic : Polynodal vis-a-vis Single Central Business District.

Growth of Cities and towns, even some of the metropolis need to be planned in a manner that these are capable of taking the population pressure from some of the overloaded metropolis. Let these not be grown into monolithic giant but be controlled in a manner that the urban agglomerate manifests a pattern. Nature has many examples to offer. Leaves of any plant species house millions of cells like millions in a town organized to do predetermined functions like transportation of raw materials, synthesis (manufacturing), consumption of products within the leaf, transportation of products from leaf to the entire plant. Each leaf has a defined size, although size and shape varies with species. Each leaf of a species grows like growing town from a tiny size to the standard adult size. Once the leaf reaches the adult size its growth is brought to a steady state. New leaf grows. Each leaf form a module and several leaves may be in a bunch to provide the polynodal form or converging to the Central Business District.

The venation structure commanding an area of green tissues borne upon a firm slender stalk, the petiole, by which it is attached to the stem or branch bearing it bears a pattern. It may be observed in the venation network of a skeletonised leaf that the principal vein is its mid-rib (Figure 1), a straight route between the petiole and the tip of the leaf, which carries the conductive major flow of water and synthesized material. Primary laterals are the major distributories which draw off their supply from the mid-rib to cater for the demand of their respective command areas. As the major flow of fluid proceeds from petiole to tip, requisite quantity of supply is transmitted through successive primary lateral veins. Flow through primary lateral veins is subservient to the major flow and is meant only to cater for the demand of their respective command areas. Thus it follows a principle of optimal flow allocation, i.e., to transport 'maximum possible' flow through only one route and 'minimum necessary' flow through the remaining venetian routes. That such a network pattern is optimal is seen using water distribution network (7). If it remains valid for water distribution, it should remain valid for any infrastructural services like transportation, communication, sewerage and so. Leaf form of 10 different plant species with major to minor axis ratio between 1 and 2 exibits interesting range for *form factor* (i.e., ratio of perimeter to square root of area) and ***area co-efficient*** (i.e., ratio of area to product of major and minor axes). These range between 3.5 to 4.5 and between 0.7 to 0.84 respectively. In case of circular form the respective values are about 3.6 and 0.79. In case of square with major and minor axes along the diagonals the respective values are 4 and 0.5. The more the form factor and the less the area co-efficient the infrastructure becomes more economical. Thus square form with major and minor axes along the diagonal provides the least cost infrastructure (Fig. 1 & Fig 2).

We are not suggesting each urban form needs to be square even though economical, but each town must grow to offer a form. Once the town is fully grown to that form, its growth in concentric circles or in concentric polygons must be discouraged. Instead the growth should be regulated to encourage another self contained urban form conforming the physiography. Such modular growth allows urban sprawl to orient in predetermined urban form. Any infrastructure, be it street lighting, sewerage, neighbourhood roads or community roads, water supply network or even mass transit corridor is an expression of integration of parts to the whole. If the whole is amorphous how would you assemble the urban built form (cross reference urban form).

Urban spread: dense versus sparse development and its impact on infrastructure.

It is common sense knowledge that spread makes any system more expensive. The long-necked giraffe although evolved to avoid competition in the pasture and to reach the green leaf at the tree top yet it remained sub-optimal in infrastructural design as it has to pump the circulatory fluid, blood, much longer distance to reach the brain as compared to elephant who also avails the leaves at the tree top utilising the trunk. Dense growth with low rise built form having a gross town density of over 160 persons per hectare is a density where infrastructural cost (indicated by water supply network) per person crosses the density barrier below which the cost per person increases exponentially (8).

Conservation of Water

On an average day the previleged urban person draw about 150 litres of water. In most cities 60 paise will get you 1000 litres of water delivered in your kitchen which might cost the city to produce at 55 paise (Table 11). Out of the 150 litres, 50 for flushing, 85 for bathing, laundary, and dishwashing and a mere 15 for drinking and cooking—the last is the only water we actually require to survive.

But this is just a start; now we add the immense amount that irrigates our food and fibre and feeds our industry. Traced back through their creation, the egg for breakfast requires 600 litres of water for each; the chicken for the dinner requires 15,000 litres of water to grow into table variety, the amount of steel needed to make the car requires 300,000 litres of water. With these indirect uses our daily need soars to some 1000 litres each. It appears strikingly contrast compared to an average American's requirement of 10,000 litres a day. One should not be unmindful of the level of growth between the two countries and India's aspiration. Water is going to be a critical input to India's urbanisation. Water use in 2000 A.D. is estimated by various authorities and the most acceptable one is presented below (Table 10).

TABLE 10

WATER USE (INDIA) 2000 A.D.

Available water 1900 *Million Cubic Metre Per year*

Uses	In 1000 million cubic metre per year		
	Taken	Consumed	Returned
Irrigation and Livestock	869	783	86
Power . . .	150	5	145
Industry . . .	35	10	25
Domestic . . .	38	8	30
Total .	1092	806	286

Although it is a common saying: Water runs uphill to money, yet it should not be made to run uphill too frequently. Indore (M.P.) brings water from the Narmada crossing the Vindhyas, Bangalore lifts the Cauvery water by 400 metres, Delhi brings Ramganga water and also Beas-Sutlej water being located on the Yamuna. It costs money and dries the source, produces wastewater at another location. As water grows more costly, recycling becomes more attractive. Why should it wait till the water becomes costly, can't we set the pace? Conservation has to be the keyword along with recycling. Conservation cuts down space requirement and recycling requires space. Historically, Bangalore could never supply to its residents more than 85 litres per day since 1884 when the first organized water supply was built to supply 16.5 million litre a day (MLD) for a population of 2,50,000 to be attained in 1921. Even today with 290 MLD supply the daily per capita supply still remains at 85 lpcd. If we can knock out the 50 lpcd which goes for flushing, 100 lpcd supply should remain hygienically, aesthetically and technologically suitable provided latrine pan requiring less flush water is adopted. Even separate urinal should be thought of.

Industry, small scale or large scale, needs to look into their water consumption. Most of our industrial products are produced at a much higher consumption of water. Every tonne of caustic soda was produced by consuming 2 kilolitre of water by all industrially advanced nations against which Indian industry needed 15 kilolitre. With persuasion it has been brought down to 5 kilolitre. Industry would conserve water provided the pollution cess already in vogue (The Water (Prevention and Control of Pollution) Cess Act, 1977) and the pollution related water tariff from industry is introduced. When the cost of conservation and also cost of recycling become equal to or more than cost of water then only conservation and recycling merit attraction in case of industry.

For domestic wastewater (sewage) recycling should be practised regardless of the cost of water. Space for recycling should form an integral part of urban form and urban land use. If an urban agglomeration with respective urban forms are oriented in a manner that the inter urban spaces (space between the modules) are utilised for recycling, then two-fold purposes are served. Urban form is regulated and made free from distortion (which is still possible but would require more massive force of clash of interest) and waste becomes a resource. Further with high density low cost urbanisation (cross reference urban form) low cost sanitation using pour-flush twin-pit latrines or small bore sewers after septic tank can be used.

Low Cost Sanitation

City like a grinding wheel throws every rider (migrant or inmate) to the location where he belongs in terms of socio-economic status. This happens so long the wheel is free to rotate in its own speed. As a result one sees the growth squalor in the pockets of affluence or the growth of affluence in the pockets of squalor. Such pattern is inexplicable and brings in tension. Can there be economic profile of the city within the given urban form? With the most affluent at the cost of the city and then economically graded with distance. If the urban form consists of module and each module is patterned in the above way then the economically weaker group is not moved far away from the place of employment. If rich people move out to suburbia leaving the core to the economically weaker group, the core decays faster. On one hand investment dries up on the other hand rich travelling by car fouls up the inner city where the central business district stays. This has happened in American cities in particular. If there is any lesson to be learnt from American expanding city then we should have an economically graded city in the reverse order. The richer you are the nearer you to the city core. Crowding caused by automobile would be almost absent. Mass transportation will be the automatic choice of the poor. As per capita consumption of any item increases with affluence all infrastructures should be wider or broader near the core and thin out with distance (see the tree leaf venetan model).

TABLE 11

Water Distribution Details of Some Selected Towns

Town or City (State)	Rupees per kilolitre (KL)		Pattern of Tariff (Rs./KL)		Total Supply in kilolitre per day (KLD) (Supply in litre per capita per day lpcd)
	Cost	Revenue	Domestic	Commercial Industry	
1	2	3	4	5	6
Karanjia (Maha)	0.88	0.99	0.5 to 0.75	1.0 to 3.0	1,479 (NA)
Akola (Maha)	0.42	**0.11**	0.25 to 0.5 30 to 75/yr: 15 mm 72 to 150 yr: 20 mm	150/yr: 15 mm 300/yr: 20 mm	24,240 (150)
Bombay (Maha)	0.06	0.16	0.3	2.0 : Govt. office 3.0 : Commercial 2.3 : Industry	20,40,000 (NA)
Chandigarh (UT)	0.88	**0.71**	domestic and industrial have differential tariff, sewerage charge exists but not properly linked to water consumption.		1,01,241 (NA)
Delhi (UT)	0.57	**0.36**	domestic and industrial have differential tariff and also graded.		15,60,000 (230)
Ludhiana (PUB)	0.22	**0.19**	domestic and indusrial have differential tariff		1,48,000 (250)
Jalandhar (PUB)	0.23	0.36	domestic and industrial have differential tariff		96,218 (250)
Salem (TN)	1.12	1.26	0.75	1.5 commercial industry	20,000 (50)
Coimbatore (TN)	0.04	0.74	There is no unmetered water connection. Domestic and industrial have differential tariff.		62,685 (90)
Nadiad (GUJ)	0.54	**0.38**	No metered domestic connection. Besides water tariff sewerage charge is collected separately.		14,000 (100)
Mysore (Karnataka) . . .	0.17	**0.06**	Free allowance of water upto certain amount is practised. No tariff details are available.		94,500 (150)
Bandikui (Raj.)	0.49	1.45	Reseaonably high tariff, no details.		1,835 (125)
Average . . .	0.55	0.60			

Source : V. Venugopalan and T. Nandkumar 'Comparative Study of Water Tariff Structure (India), WHO supported study in the Ministry of Urban Development, Base Year 1984-85.

Solid Waste Collection and Transportation—Professional Management

Given a suitable urban form collection, transportation and disposal of solid waste becomes manageable, economical and amenable to hygienic disposal. Present day solid waste disposal follows a hit and run technique. Even if you look at Delhi model one would shudder to see how shabbiy this is handled and disposed. Low lying area between the Ring Road running along the Yamuna and Delhi-Nizamuddin railway track attracted for disposal. What is declared as sanitary landfill is far from the rules of the game of sanitary landfill. Even then when the green carpet is laid at the top with trees in position everyone in the organization remains proud about it and the political leader also takes the credit. But little they know what is happening to the recipient Yamuna water when the river is recharged with groundwater. What extent of leachate moves underground to reach the Yamuna. Now that this area is filled, the hit and run squad has located some low lying area at a place designated as SG Transport Nagar (NCU member is advised to visit before completing the report).

Ignorance is bliss, but too much of it is vice. Solid wastes management for the cities of twentyfirst century even in India would demand more knowledge and sophistication along with thinking ahead. No thinking can be concretised unless you know the limiting shape of the city atleast in a modular way. As infrastructure requires planning, designing and implementation so also solid waste handling.

Sudden Change in FSI, TD and Its Impact on Urban Infrastructure

Infrastructure being made of inanimate objects remains inflexible. Although it can accommodate certain extent of changes. The coaches of most local trains are designed with less sitting accommodation and more space for standing. This is global. It allows crowding during peak hours within a limit. Sudden spurt of multistoried buildings in some areas close to the central business district, say in Calcutta, has brought total chaos for the traffic in the neighbouring roads as more cars tend to park, the sewer line is loaded, the water supply is incapable of providing the higher demand. Some solving water supply problem by withdrawing water sinking tube well, causing unplanned withdrawal of ground water. All these are happening as the FSI, TD of certain areas are relaxed. under pressure of interested groups. It again reminds us that this would serve limited interest but not greater interest. If instead it is planned that areas near the core would be made denser using high rise systems in phases then the infrastructure can also be planned in an incremental way. The venetan system of a tender leaf is thinner than that of a adult leaf. So nature has the example.

Land Use And Meteorological Data For Industrial Estate Development

Too much mixing of land use affect the environment. Environmentally compatible activity should be mixed together and this should be practised as far as practicable. Building requires stone chips—that does not mean where there is building activity there would be stone crusher. Wind and wind structure stirs urban air. The path along which the wind travelled in the early hours of December 3, 1984 from the Union Carbide Plant of Bhopal left its scar. Location of obnoxious activities need careful planning taking wind and wind structure along with other meteorological conditions like inversion, solar insolation, wind stability structure in view.

Industrial Estates created to encourage small scale entrepreneurs are veritable nuisances. They register for one product, produces some thing else and often changes name and product to dodge the regulatory agency and to catch the market.

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[7]. R.N. Bhattacharyya and N. Chaudhuri, 'Optimal Flow Allocation Method for Design of Least Cost Water Distribution Network' *Proceedings of International Conference on Water Resources Engineering, Bangkok, Thailand, January 1978, p. 785.

[8]. N. Chaudhuri and S.K. Bhattacharya,'An Enquiry into the Rationale for the Selection of Medium and Small Town for Organized. Piped Water Supply Schemes, ' Jour. I.W.W.A. Vol. XI, No. 1, Jan-Mar 1979, p. 137-144.

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City must provide its own nourishment. As agricultural surplus comes to cities after satisfying (?) the needs of agriculturists. Cities' product must if the present cities cannot spread in the country and also abroad after satisfying the needs of the city. If the present cities cannot fend for themselves how would these cities would gainfully accommodate the migrants and natural growth. As water supply is one of the major infrastructure its economic viability may act as a pointer for the same for other infrastructural services.

Financial Analysis

Most of the local bodies and water supply undertakings do not seem to carry out proper financial analysis for various reasons. Proper financial analysis must be carried out at suitable intervals (but at least twice a year) to enable the management to take prompt decisions. This would involve a number of activities to be undertaken as below:

1. Introduction of proper accounting system

The existing practice of cash accounting system followed by most municipalities is not conducive to an effective financial analysis and consequently leads to insufficient data for decision making. The introduction of a commercial accounting system is a desirable objective but a sudden change over from a cash accounting system to commercial accounting system can also create problems. The transition would be smoother by adequate strengthening of the financial/accounting wings of these bodies, proper training, preparation of all manuals with full instructions, etc.

2. Maintenance of accounts

The objective of maintaining accounts only to keep track of the previous expenditure and keep records for posterity should be changed. The essential purpose of maintaining accounts should be one of enabling the management to take proper decisions based on the data available. In addition Public Accountability will also continue to be enforced. A proper compilation of accounts should, therefore, be made every month and put up to the management for taking decisions.

3. Monitoring of costs

In many water supply agencies, cost consciousness seems to be inadequate or lacking. In public utilities, the basic philosophy is not one of the generating profits but one of rendering services at affordable prices. This concept, however, is often mis-interpreted or misunderstood as one of providing services at any cost. While subsidisation *per se* may not be avoidable, it should be ensured that the subsidisation is limited to the scope and class of beneficiaries to whom it is really meant. Very often the 'cost of inefficiency's is also loaded on to this subsidy. For example, a higher energy cost resulting from the inefficiency of design or of worn out pumps, high labour costs resulting from sub-optimal use of manpower, etc. are not calculated. The absence of cost accounting also creates problems in evaluating these factors. However, introduction of cost accounting may be difficult in most municipalities. What is required is a continuous monitoring of major costs in operation and maintenance and in capital investment. In the case of operation and maintenance, these are normally energy costs and man-power costs and these should be monitored closely to ensure that unnecessary and avoidable expenditures are not incurred.

4. Cost of Services

The cost of services, say, production of water, have to be kept in mind while fixing tariffs. The Average Incremental Cost of producing the services should also be calculated and taken into account while suggesting tariff revisions. It is also necessary for the organisation to closely monitor the increase in service costs.

5. Data on tariff

Adequate data on tariff should be collected and maintained to help the management to frame suitable tariff revision policies. This would include the number of various categories of consumers, approximate quantities of water used by them, if possible quantities of wastewater and solid wastes generated by them, growth pattern of these consumers, revenues generated by various components of tariff and the over all collection efficiency.

6. Use of Micro Computers

All the medium and big water supply agencies should make use of the facilities provided by micro computers for storing, retrieving and analysing financial data. Available software packages can be effectively used for financial analysis if found suitable, alternately these agencies can generate their own formats for analysis using the services of software consultants.

In this regard the financial statements prepared by the Water Supply and Sewerage Department of Bombay Municipal Corporation for their financial review is worth noting:

The checklist comprises

(1) Statement of annual capital expenditure

(2) Interest charged to revenue

(3) Consolidated loan schedule

(4) Daily water demand and supply pattern

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(5) Yearly water charges and sewerage charges

(6) Direct costs

(7) Rateable value and sewerage value projections

(8) Revenues at present tariffs

(9) Statement of working capital

(10) Financing Plan

(11) Income and Expenditure Account

(12) Statement of working capital

(13) Balance Sheet

(14) Funds flow statement

(15) Monitoring Indicators.

These statements are fairly comprehensive in nature and enables the agency to do a proper financial analysis of its working and bring about tariff adjustment at the appropriate time.

(This is a good model which the cities (population 500,000 or more) including metropolis and even towns identified as centres of rapid growth must follow. Since most of the financial data in Bombay WSSD are computerised, it is a good example for these agencies to follow with suitable modifications.

Fixing Taxes and Charges for Infrastructural Services Rendered to the People

Tariffs for services like water supply, sewerage and conservancy (in the sense of solid wastes) should be adequate enough to make the services self-sustaining with built-in capability of augmenting, modernising and even expanding. As there will be towns, cities and metropolis having widely varying character in terms of productivity, efficiency, significance, size and capability it may remain desirable to aim for tariffs covering different components of infrastructural services.

Adequacy

Although affordability is linked with adequacy, the minimum that tariffs should cover is the full operation. maintenance and repair cost (OMR cost). Dependence on general revenues or government subsidies for OMR affect the system adversely as untimely release of subsidies and grants leads to the postponement of agency should be able to generate adequate revenues deteriorate at a rate faster than desired.

The second charge on revenues from tariffs should be debt servicing charges. A healthy infrastructural agency should be able to generate adequate revenues to pay back its capital borrowings. The failure to collect sufficient revenue to pay back capital borrowings would result in increasing demands on general revenues of the municipalities or of the State Governments. Competing priorities for investments may often deprive the specific agency of getting its required share.

The first attempt on tariff setting should, therefore, aim at covering both operation and maintenance charges and debt servicing.

The next stage is to provide for what is commonly described as 'depreciation'. Depreciation is not a charge on cash, it is only an accounting entry and very often this amount is not available for expenditure. What is more appropriate in the context of any of the infrastructural agencies is the money required for a 'renewal' and 'replacement' programme. Most agencies will, therefore, have to formulate and implement a renewal programme for the next five or ten years for evaluating the economic and technical lives of the systems components. A phased programme to repair, renew and replace some of the wornout assets will have to be made and the annual cost of such a programme worked out. The amounts required for this programme will have to come out of the revenues generated by tariffs. This should be the second-stage target for revenue generation from tariffs.

The third charge on revenue generated from tariffs will be the annual capital expenditure for future investments like augmentation. modernisation, and even expansion. Normally it is possible to borrow for future investment programme. Lenders (World Bank, L.I.C.) expect the agency to generate at least some funds for its capital investments. A tariff structure should, therefore, attempt on generating at least 50% of the funds required for its annual capital investment programme. (Bombay Water Supply and Sewerage Department is generating 40& of its annual capital expenditure in addition to operation, maintenance, debt servicing and renewal costs at present.)

Tariff Structure

It seems necessary that the tax component is retained in addition to the charges based on volumetric consumption (for water) or property characteristics. The existing method of collecting revenue through water and sewerage tax (surcharge), sometimes conservancy surcharges related to property tax may continue in small and other towns indicating comparatively low growth potential. The best method of levying charges is through metering specially in cities, metropolis and towns with comparatively higher growth potential. Arguments like absence of sufficient number of good quality meters, difficulties in repairing meters should not stand in the way when electricity consumption is invariably metered and improved design and quality of meters are feasible. Sufficient care must be taken to ensure that these charges do not fall much below the cost of providing water.

In metered areas a differential tariff structure is recommended to take care of affordability and financial self-reliance. The consumers may be divided into three major categories (i) domestic, (ii) commercial, and (iii) industrial. Within these sectors a graded levy system could be evolved. As an example, within the category of domestic consumers, many water utilities follow a three-tier system. A reasonable charge upto 25 kilolitres per month, a higher charge for the next 25 kilolitres and a much higher charge for consumers above 50 kilolitres. In our view, the existing limit of 25 kilolitres is too high, this need to be brought down to at least 15 kilolitres which is much more than 'a life line block'. The domestic segment could have categories : one upto 15 kilolitres (rate 'X'), double the rate for consumption between 15 and 30 kilolitres (i.e. '2X') and for consumption above 30 kilolitres, 4 times the basic rate (i.e. '4X'). This would reduce conspicuous and wasteful consumption and also help to cross subsidise the category of poor people. There should be no free allowance paid out of any resource (Bangalore and Mysore have a free allowance of 25 kilolitres per household per month).

To fix the tariff structure for industrial water use, the pollutant load conveyed along with wastewater must be kept in view. The pollution control boards specify limits to certain critical pollutants to be discharged into city sewerage systems. Pollutants causing corrosion to conveyance systems, health hazards to sewerage maintenance workers, pollutants that may upset the terminal sewage treatment plant of the city are required to be removed within battery limits of the industry by providing suitable treatment systems. Even then for the services rendered by the city sewerage systems for carrying the left over pollutants in the industrial wastewater the industry should be charged suitably. This may be charged in two ways: (i) raising the water tariff suitably for the industry case by case; (ii) collecting sewerage tax. In both the cases the combined index of quantity and quality of wastewater should be reflected properly in the tariff structure.

Calculation of Water Rates

The exact calculation of rates will depend upon the cost of production of water and the cross subsidisation expected from high income consumers like commercial, industrial, higher income domestic, etc. While fixing rates, therefore, the cost of production of water, OMR costs, debt servicing and cost of renewal programme could be taken into account and then a weighted average tariff arrived at. This weighted average should be used to calculate the differential tariff including taxes.

Revision

Timely revision of tariff is essential for managing the water supply, and for that matter any infrastructural services, properly. Very often it has been found that revision of tariffs have been postponed on various pretexts and this has resulted in high tariff revisions resulting in consumer resistance. Revision of tariffs may be in small but frequent doses. A tariff revision once every 2 years is suggested.

Indexing of tariffs

The major factors that influence the increase in cost of production as mentioned earlier are energy costs and man-power costs. The State Electricity Boards revise their power tariffs quite frequently and the water supply agencies are not able to increase their water tariffs correspondingly. There should be an automatic indexing system for water supply authorities. For example, if a 20% increase in power tariffs result in a 10% increase in cost of production of water, then the water supply agency should be authorised to increase the existing water charges by 10% without waiting for any approvals.

Collection Efficiency

The efficiency of billing and collection is a crucial issue. It has been found that in many agencies, bills are not sent out in time and collections not insisted upon or enforced. Many agencies have a problem of serious defaults in payments affecting their cash flow and fund positions. The Agency should fix a realistic frequency of billing and collection and should aim at a collection efficiency of not less than 95%.

Affordability

The affordability of the population to pay for their water charges is major issue in fixing tariffs. While affordability has to be differentiated from 'willingness to pay', efforts should be made to look after the interests of the poor sections. Normally there are protests after revision. These are not necessarily related to affordability issues. The water supply agencies should, therefore, try to understand affordability issues and carry out a 'consumer awarness (education) programme'.

Public Hydrants

Public hydrants (stand posts) are a necessary part of any water supply system in India. However, there is a noticeable tendency towards indiscriminatory increase in the number of stand posts which result in wastage of large quantities of water. This also discourages people from taking connections, especially people who are on the margin of affordability. A serious attempt should be made, therefore, to reduce the number of stand posts to the barest minimum required.

Institutional Arrangements

Management

The agencies looking after the infrastructural services should be more than 'construction and maintenance' agencies. Management needs to be punctuated with management experts, financial managers, public administrators, sociologists besides engineers. The traditional approach of 'allocation-expenditure' has to be changed to one of proper financial management requiring the services of financial analyst. Traditionally bi-monthly or quarterly billing cycle is followed by agencies like electricity, telephone agencies. It is possible to reduce manpower and thereby costs by sending provisional bills based on an overall consumption average to a majority of consumers especially domestic consumers and some commercial consumers and concentrate on regular (monthly) reading of meters only in case of big and bulk industrial and commercial consumers. Domestic meter readings should be taken once in six months or so and bills adjusted. It will be cost effective to do computerised billing in most of the water supply agencies where there are sufficient number of bills to be issued. Collection of bills through Banking network should be preferred as far as practicable to cut down consumers' time for paying the bills.

Sewerage and Conservancy Charges

It is mentioned earlier that the sewerage and drainage charges may be linked to water consumption for domestic and commercial consumers. Charges for solid wastes collection may remain tagged with property taxes. For industrial establishments the charging should be linked to quality and quantity of industrial waste water as mentioned earlier.

Sanctions

The effective sanctions against non-payment of bills for water supply and sewerage is dis-connection of the facility of water supply. There is an advantage, therefore, in combining water and sewerage bills. Dis-connection notices will have to be issued as a statutory requirement before actual disconnection. It is possible to build in a proper software package for this also if computerised billing is adopted.

Power to levy and revise tariffs

Many of the State Governments have directly or indirectly controlled this. If a water supply agency is to function as a viable public utility, this authority has to be fully exercised without any adhoc controls by other agencies. The Kerala Water and Waste Water Authority Act has a specific provision in this regard. The Government could, however, insist on conducting management audits to ensure that the water utility does not keep on increasing its tariffs to cover up its inefficiency in operations.

Public Relations

Most of the public utility authorities do not have a public relations programme. They need to explain to the consumers the importance of clean environment and costs that are incurred in providing clean environment. The public relations programme should also make people aware so that people insist on clean environment, Resistance to tariff revisions may be on the decline.

Inter-relationship with other agencies

There have been serious problems of inter-relationship between agencies looking after different infrastructure services. The civic management must orient the systems in a manner as producing units run the different producing shops in a coordinated fashion.

Training

Training of personnel in these agencies seems to be a neglected sector. A much larger emphasis on financial personnel and public relations management need to be made in addition to technical training.

Technical Issues

Operation and Maintenance (O and M)

A well thought out programme of O and M would reduce unexpected break downs and problems like delays in restoring the system. While financial limitations have affected OMR to some extent, lack of adequate planning is also a major reason. There need to be well thought out system of OMR and replacement of worn-out assets.

Leak detection

Leaks in the distribution systems have been a cause of major concern. Apart from serious loss of revenue, this also cause pollution problems. Leakages through public hydrants which is a common feature in many towns also causes serious water losses. In addition this gives an impression to the consumer that a good quantity of water is being wasted by the authority for which they are being billed. This increases consumer resistance and criticism. It is necessary that leakages are plugged and repaired quickly.

Metering

Development of dependable meters within the country and establishment of adequate facilities for meter repairs should be attended to urgently. It is necessary in the long run to complete full metering in most towns and cities.

Optimal use of technology

In the design and maintenance of water supply systems, new technology needs to be introduced to optimise the use of resources. This would include new and improved materials and improving the efficiency of system (for example, World Bank/UNDP is assisting Govt. of India in improving the design of distribution system by using micro computers).

Research

There is also a need to support research institutions to ensure efficient use of scarce resources and for development of new and less expensive materials for use water supply systems. There is also need to continue research in trying to reduce energy costs in water supply systems.

General

There have been serious problems of inter-relation-issues. It may be worthwhile to take up a few towns/cities for detailed analysis. There is also a pressing need to focus more attention on Institutional, Financial and Managerial aspects.

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REPORT OF THE WORKING GROUP
ON
PHYSICAL PLANNING IN INDIA

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PREFACE

The National Commission on Urbanisation has on its agenda the challenging tasks of identifying action areas to facilitate healthy urban growth and also suggesting urban development policies and programmes that would ultimately lead to a balanced pattern of human settlements throughout the country. The physical planning process which concerns with the design and management of the physical environment of human settlements thus form an integral part of the tasks assigned to the Commission.

In order to be guided by professional expertise in formulating its views, the Commission constituted a Working Group on "Physical Planning in India" on 23rd December, 1986. The Group consisted of Shri B. G. Fernandes, a Member of the Commission as its Convenor and Shri E. F. N. Ribeiro, Chief Planner, Town and Country Planning Organisation (T.C.P.O) of the Government of India and Prof. L. R. Vagale, formerly Professor in the School of Planning & Architecture, New Delhi and currently a United Nations Consultant as its Members. Shri Ribeiro due to his preoccupation with official work was unable to serve on the Working Group. The Working Group was reconstituted on 20th February, 1987 by including Shri D. S. Meshram, Additional Chief Planner, TCPO, Shri B. N. Singh, Chief Regional Planner, National Capital Region Planning Board and Dr. Nilay Chaudhari, a Member of the Commission as Members. Later, Shri Brijesh Kumar, Commissioner, Lucknow Division and Brig. N. K. Mayne, Director, Sainik Welfare, Madhya Pradesh were also included in the Group through notifications issued on 5th March, 1987 and 14th March, 1987 respectively. Thus the final composition of the Group is as follows:—

(1) Shri B. G. Fernandes, Convenor

(2) Prof. L. R. Vagale, Member

(3) Shri D. S. Meshram, Member

(4) Shri B. N. Singh, Member

(5) Dr. Nilay Chaudhary, Member

(6) Shri Brijesh Kumar, Member and

(7) Brig. N. K. Mayne, Member.

The task of the Working Group consisted of:

(a) An overview of the state of the art of physical planning as practised within the framework of the State town planning laws, and the existing administrative structure for urban planning in the country;

(b) Critical evaluation of the physical planning functions in terms of form and content; the effectiveness of "Development Plans" in the context of the nature of problems faced by cities and towns;

(c) Review of the State town and country planning laws, functioning of State town planning organisations, statutory urban planning and development authorities, and professional/technical planning organisations; and

(d) Suggest new direction to physical planning at the regional and urban level that will fashion cities and towns for serving the human needs of a transitional society.

The Working Group held eight meetings during which the Members had intensive deliberations on various issues related to the topic. The Group had also received valuable information inputs through two research studies assigned by the Commission—"Evolution of Physical Planning in India" by Prof. N. S. Saini of the School of Planning and Architecture, New Delhi, and "Integration of Spatial and Economic Factors in the Planning Process" by Dr. P. N. Sharma, State Planning Institute, Lucknow.

The Group was also guided by the information and opinions received by it from professional bodies like the Institute of Town Planners, India and its various Regional Chapters, Schools of Planning & Architecture, central Town and Country Planning Organisation and the Town Planning Departments of various State Governments.

Due to busy official engagements, Dr. Nilay Chaudhuri was unable to attend the meetings of the Working Group and participate in its deliberations. I wish to express my thanks to all the Members of the Group for sparing their precious time for attending the meetings and for their painstaking efforts in debating the various issues and preparing the relevant chapters for the Group's report.

The Members of the Working Group are grateful to the National Commission on Urbanisation, particularly to Shri Naresh Narad, Member-Secretary for extending all facilities for the Group. The Group would also like to place on record their appreciation of the efforts put in by S/Shri P. Sisupalan, Research Officer and C. Baskaran, Regional Planner for co-ordinating the work of the Group and also for providing the resource materials which facilitated the Group's deliberations.

B. G. FERNANDES
Convenor

June 1988

CHAPTER 1

INTRODUCTION

1.1 The report on physical planning in India*, *inter alia* takes account of the present and prospective scope of physical planning, in the context of urbanisation as an important aspect of economic and social development of our country. Therefore, at the outset it is necessary to define the type of planning with which the physical planners (Urban and regional planners) are concerned.

1.2 Physical planning profession is concerned with spatial development of human settlements (Urban and rural) it is concerned with the framing and execution of a policy with respect to the use and development of land. Whereas the physical planning process concerns with the design and management of the physical environment of settlements in accordance with predetermined and agreed policies whereby balanced social and economic objectives may be achieved.

1.3 Urban planning (town planning) in India is a State subject; hence urban planning activity is governed by the State Town Planning Laws. The Law provides for the manner in which the land in urban areas is proposed to be used and prescription of development control measures for enforcing the land use.

1.4 Experience has shown that the 'master plan' (development plan) prepared as stipulated in the Town Planning Acts is a static concept. Whereas, in a rapidly urbanising country, such as ours physical planning must be seen as a dynamic, adaptive, iterative and continuous process of anticipating and managing social and economic changes taking place in our country as a consequence of national development.

1.5 The town planning practice in India has been based on the assumptions, principles and models of city planning in the industrialised countries, which have hardly any relevance to the major problems associated with rapid urban growth. The industrial nations did not have to grapple with problems of rapid urbanisation and their attendant manifestations on the scale India is now facing.

1.6 One of the tendencies to rely on models and techniques developed in the West is the reliance on land use planning incorporating all sorts of development controls and zoning regulations as the principal activity of town planning. Experience has shown that such an approach gives little consideration to the social and economic factors and mostly insists on the compliance of planning standards which are unrealistic when related to the socio-economic forces shaping and operating within our cities and towns.

1.7 If physical planning in our country is to make a positive contribution to national development and not remain a static form of activity, it must address itself squarely to the solution of problems faced by our cities and towns. Therefore, the present emphasis in urban planning needs to be shifted from the concern for only land use planning to that of guiding very complex, inter-related process of social and economic change generated by national economic development

1.8 In fact, the emphasis need to be shifted to policy planning. Policy, plans and programmes are needed to deal with the influx of people to the large cities, to deal with housing, mass transportation, employment, finance, income levels, the integration of informal economic activities into the general urban economic system, health, education and the utilisation of all available resources for achieving social objectives. It must be the concern of the physical planner to consider the spatial implications of these various policies and to anticipate and plan for the spatial impact of activities generated by the policies. It is the formulation of these policies which should constitute the principal activity of the physical planner with land use consideration stemming from the application of these policies. Land use plans should then be designed as one of the instruments to promote the implementation of accepted policies.

1.9 However, it is imperative that the role of physical planner should not be confined as it is at present, to the local, city or town level only. The town planning profession in India must try to ensure that its expertise and advice are also made available and influence policies, plans and programmes at both national, state and regional levels.

1.10 There is a need to clarify the objectives of physical planning. There is first, the long range objective of providing the best possible physical environment in which our social and economic activities can properly take place. Towards this end there is the secondary objective to achieve proper distribution of urban settlements throughout the country or region as a whole, providing for proper location in regard to employment centres, transportation routes and all other factors which determine the distribution of cities and towns. The third objective is to control the size, form and character of each urban settlement. The contemporary physical planner must consider it in sufficient to think in terms of local betterment of land use patterns, transportation and the like, without seeing where the locality by itself stands in relation to the whole scenario of urban distribution on a regional basis. These latter two objectives, no doubt, will achieve the first.

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*The term Physical Planning is synonymous with own planning. The Report of the Committee of Ministers on Shortage of Town Planning Personnel, Ministry of Works and Housing, Government of India, stated in 1966 that the word town planning does not connote only planning of towns. It is a term derived historically in the United Kingdom and is internationally accepted to mean not only planning of towns but also planning of villages, Planning of rural areas, planning of metropolitan cities and planning of regions.

1.11 In India, while active and positive programmes have been undertaken to plan cities and towns, no such official policy has been established in actual practice on the national level to properly guide the overall distribution of urban settlements. The adoption of such a policy would be a first step towards dealing with current problems of urbanisation.

1.12 It may well be argued that we are not in a position to predict shifts from agricultural to industrial or other non-agricultural activities and that we must sit tight and watch how things go, and then adjust accordingly. However, today, we have the know-how available to efficiently develop physical resources and to anticipate the impact of their development, to be able to apply the planning process at the national and state levels and actually prepare for changes to take place. In a planned economy, such as ours, there is no reason why we cannot first determine the kinds of economic development which are likely to take place and establish a policy and standards related to the distribution of industry. With this basis we can then anticipate the potential effect of economic development on population movements and on patterns of urbanisation, guide population redistribution according to principles of sound regional development; and finally, plan for the development of specific urban settlements to accommodate the anticipated functions and population. This, indeed, is a much broader and more dynamic view of urban planning than has ever been generally accepted or practised in the West.

1.13 Therefore, it is necessary to develop new planning techniques, to fit the urban situation in our country. The skills and experience for undertaking urban and regional planning are currently grossly inadequate. Planning education in India, must, therefore, relate physical planning at all levels directly to social and economic goals of the nation in order that the entire process of planning in general can effect the pattern of social and economic development. The Institute of Town Planners, India (the only professional body in the country) whose major objective is to build up both the status and strength of the planning profession must make a concrete effort to attain its cherished goals.

1.14 A closer examination of contemporary urbanisation problems in India, suggests a strong case for attempting something new to resolve the problems which has to be found through sustained research. There is not enough real knowledge to resolve some of the conflicting opinions and interests, in order to provide a national basis for concrete decisions, public or private, national or state. Even to determine the actual importance of the urban pattern, its effects need to be much better understood. This means a systematic research programme on many inter-related issues stemming from urbanisation.

1.15 In our report we have reviewed the evolution of physical planning (Urban Planning) in India from the ancient to the contemporary periods, and their relevance today; we have examined the present status and scope of physical planning, and its present and prospective role in, national development; the statutory and administrative framework for physical planning in India has been discussed; a need for an urban land and land use policy has been emphasised. The issue of land presents a challenge to properly balanced course of urbanisation. All settlements subsist on land and the availability and use of land, its assignment, degradation, protection and restoration are major issues in settlement planning; and finally the report concludes with the much needed improved education and training of planners and a sustained research programme for building up knowledge to facilitate decision making.

CHAPTER 2

EVOLUTION OF URBAN PLANNING IN INDIA

2.1 The ancient history of India resplendent with its socio-cultural heritage is the true beginning point for a historical retrospect on physical planning in the country. Primary features of town and village planning like the demarcation of space-based functional and occupational characteristics and the emergence of related guidelines etc., could be traced to the Mohenjodaro and Harappa, Vedic periods of Indian History. The principles of physical planning in the present time are thus a culmination of the thoughts and practices of the past, evolved through clearly defined policies and programmes of different periods. This examination of our historical past presented in this chapter dwelves into the content and scope of the physical planning practice followed during different periods and the trends in the emergence of related legislative and institutional support system.

2.2 History of Physical Planning in India

Historically, five significant periods are identified through which the evolution of town planning (physical planning) has taken place in India.

2.2.1 During the Mohenjodaro, Harappa/Vedic Periods, towns and villages were planned on the basis of definite street patterns related to co-radial directions and the major functions of the proposed settlements. Central locations were occupied by places of worship in the layouts. The residential and work areas were defined on the basis of caste-related occupational patterns. Wall and moat defined the urban limits as distinctly different from countryside. The lessons of this experience are:

Detailed guidelines worked out for site selection and street layouts can be effectively used even today.

The concept of work-cum-living areas can be utilised even in the modern context through the planning of selective mixed landuse areas.

The concept of relating circulation pattern with major functions of town can be utilised at the neighbourhood or sector level planning exercises.

2.2.2 During the Buddhist Period, nobility patronised the places of worship in the towns and cities. Large number of capital cities were built with linear or extensive Bazars and monumental town squares under the patronage of Kings. A number of small towns came up with centres of higher learning as foci. Villages in particular and rural areas in general were dominated and controlled by towns and cities where surplus wealth permitted leisure and other higher order intellectual activities related to arts and crafts. Wall and moat were considered a necessity for the security of the city. The lessons of this experience are:

Major factors that influenced urban planning in this period were religious values, strong sense of geometry in terms of layouts, potent regional context and dominent security aspects. Although the way of doing things may have changed over the years, still the above factors are important in any urban planning project.

Patronage to craftsmanship resulted in refined architectural styles in this period. A strong sense of town architecture (or urban design) shall always remain an asset to the profession of town planning and design.

2.2.3 During the Moghul Period, Mosque as a place of worship came into focus. Moghul rules were great monument builders. Towns and cities built by Moghuls had rich landscape content in addition to a significant number of public and private buildings of architectural values. Baghs (Gardens) and Bazars flourished under the patronage of kings. Wall and moat continued to define the city limits. Urban design was better understood and employed to impart character and strength to urban planning.

The lessons from the works of the Moghul Period are:

Selective use of areas with flowing water and judicious placement of flowering as well as evergreen trees transform the sharp edges of local climate in favour of inhabitants.

Shaded streets and linear markets still have potential in terms of modern urban design and urban planning concepts related to residential areas.

Strong devotion to axial and introvert planning created a number of unique urban complexes that are still the subjects of study for urban planning and design students.

2.2.4 During the Colonial Period, the traditional linkages between the urban and rural areas were indirect in the interest of the rulers. Large cities with port facilities flourished at the expense of other smaller settlements. Industries and Railways altered the built environment and life styles in Indian towns and cities.

Beginning of the 20th century saw the consciousness towards town planning in India in modern times. Patrick Geddes was invited to advise on matters of town planning and development of existing towns and cities. The mode of planning suggested by Patrick Geddes, based on his postulates of 'place-work-and folk', challenged the prevalent official planning based on engineering and business conventions. His methods of diagnostic survey and conservative surgery were illustrated in the improvement schemes prepared by him for the towns of Tanjore, Madurai, Balrampur, Lucknow, Indore, etc.

During this period, a number of Town Planning Acts came into being. Improvement Trusts were created to tackle the problem of improvement in towns and cities.

For the improvement of towns and cities, a number of Town Planning Schemes were formulated by the various, local governments in several states. These schemes were backed up by the State's Town and Country Planning Acts/Improvements Trust Acts. The town Planning schemes formulated comprised schemes for some of the following activities; Road improvements, laying out of land, reclamation of land, construction of buildings and bridges, housing, water supply, drainage, lighting and creation of open spaces. The Madras Town Planning Act, 1919 paved the way for the local authorities to prepare town planning schemes for the local governments.

A draft town planning scheme consisted of the following particulars of an area; ownership of plots, allotment of land for specific use of the scheme, alteration of the boundaries, estimated cost of the scheme, to be borne by the local authorities, full description of all the procedures of the scheme, laying out and reclamation of land, enforcement regulation and other prescribed particulars.

The town planning schemes were taken up an area basis with the objective of providing minimum infrastructure and activities. Many of the schemes like plot reconstitution, water supply, road improvement

The lessons of this experience are:

Town planning still had a strong sense of urban design principles. This cannot be totally dispensed with even today. The principle and practice that the socio-economic status of beneficiaries of plan and planning should be ascertained beforehand, is still considered as an important part of the planning methodology.

That the process of plan making and implementation needs legal backing, has been more specifically felt in recent years.

2.2.5 Post Independence period on Town Planning was marked by rapid changes in the form and content of urban planning. The problem of resettlement of refugees due to the partition of the country resulted into a number of planned new towns like Faridabad, Nilokheri, Kalyani and Rajpura. In the beginning all these new towns and also the mandi towns started coming up with a very heavy residential area components, whereas other land uses were not organised in detail. By this time, at the state level also, the limitation of town planning schemes to take care of the problems of growing towns and cities were becoming evident. Thus, a need was felt to prepare master plans for the towns and cities as a co-ordinated set of proposals for physical development.

In 1951, two major events can be termed as important benchmarks—(a) launching of the First Five Year Plan; and (b) setting up of the Institute of Town Planners, India. The major objectives of setting up of the Institute were: (a) to advance the study of town planning. Civic design and kindred subjects and of the sciences and arts as applied to those subjects; and (b) to promote planned economic, scientific and artistic development of towns, cities and rural areas.

should be integrated and its impact on urban and regional planning be monitored.

The Central Regional and Urban Planning Organisation (CRUPO) was established in 1957 by the Government of India as the central technical advisory organisation to advise Central Ministries, Departments and industrial undertakings, State Governments and local bodies in all matters relating to town and country palnning. This agency also acted as a higher co-ordinating agency in respect of regional development.

Delhi Master Plan was published in 1962 and since then it has acted as a model for preparation of development plans all over the country. After the completion of the work of Master Plan on Delhi the TPO was merged with CRUPO in 1962 and the name of the organisation was changed to Town and Country Planning Organisation (TCPO).

The Third Five Year Plan (1961-66) provided for the preparation of master plans for all major cities, metropolitan regional plans and regional plans for industrial areas, resource regions and river valley regions, under various schemes of central government assistance. Town and Country Planning Organisation became the central agency helping the states in preparation of master plans for cities and approving central grants for the purpose.

The Fourth Five Year Plan (1967-74) asserted the need of measures to restrict the growth of the larger urban centres.

The Basic Development Plan for Calcutta and subsequent creation of Calcutta Metropolitan Development Authority (CMDA) to implement the plan also stand out as important events in the evolution of urban planning in India.

The Master Plan for Bombay was published in 1967 and in the same year Bombay Metropolitan Regional Development Authority was constituted which broadly delineated the Bombay Metropolitan Region and formulated a Regional Plan in 1970.

Housing and Urban Development Corporation (HUDCO) was set up as a financing agency for housing and urban development in 1970. Another landmark was the creation of City and Industrial Development Corporation (CIDCO) for planning of New Bombay—a unique concept based on high technology and futuristic concepts.

The Fifth Five Year Plan (1974-79) land down the twin objectives of removal of poverty and attainment of self-reliance. It laid stress on development programme for the weaker sections. Environmental improvement programmes for slums got special emphasis during this period.

The Fourth and Fifth Fiver Year Plan identified new sets of urban situations and problems due to the typical urbanisation pattern, favouring advantageous regions and cities. The period is signified by the creation of urban development authorities and special function authorities etc.

During the Sixth Five Year Plan period (1980-85), on the basis of report of the Task Force on Planning and Development of Small and Medium Towns and Cities (1977), a programme known as Integrated Development of Small and Medium Sized Towns (IDSMT) was launched. A large number of housing boards in various states were established with the specific aim of financing and development of houses and the related infrastructure. Schools of Urban Planning were started at regional level to meet the demand of planners.

The awareness of deteriorating environment, depletion of non-renewable resources and the increasing migration to metro-cities became a focus of urban planning during the Sixth Plan Period (1980-85).

The enactment of National Capital Region Planning Board Act, 1985 by the Central Government having an Interstate jurisdiction of Delhi Union Territory, Uttar Pradesh, Haryana and Rajasthan is an important landmark in the Regional Planning efforts in the country.

The Seventh Five Year Plan (1985-90) realised that the urban problems have been increasing inspite of all efforts in the past. In the light of new demands of the twenty first century which is expected to be fully based on technology and rationalisation, it is felt that a critical review should be made for which the National Commission on Urbanisation was constituted in 1985.

From the problems of refugee rehabilitation to project towns to planning of capital cities, to numerous Master Plans for existing towns and cities and finally the implementation of urban plans under the umbrella of National Five Year Plans have taught many lessons to the planners. Establishment of Town Planning Departments have enriched the profession by bringing in the regional experience and problems to the focus. The ever growing search for right kind of solutions are continuing in the field of urban planning.

Lessons of this experience so far are:

Town and country planning should be carried on scientific, informational and analytical basis. Modern techniques of 'Remote Sensing' should be used effectively in conjunction with computerised information base, so that the subjectivity in planning, decisions-making process could be reduced effectively.

Town and Country Planners should acquire capabilities in Development Management so that it can play responsible role in the implementation of plans.

The good experiments for planning and development of some of the States should be extended with necessary modifications to all other parts of the country. For example, the Regional Planning experience of

Tamil Nadu and Maharashtra is quite advanced and the Urban Community Development Programme of Hyderabad has been very successful.

Establishment of town and country planning organisations at State level helped in creating general awareness about the necessity of planning of towns and cities to improve the quality of life of its inhabitants. It has also helped in effective tackling of regional issues related to settlement planning in various cases. The enactment of various pieces of legislations by the State Governments have provided the required legal backing for Towns and Country Planning. Some of the States are revising their existing acts to remove the shortcomings and legal lacunae that had creeped in earlier.

Generally the state level Town and Country Planning Organisations are engaged in preparation of Master Plans and Regional Plans, Town Planning Schemes, implementation in some cases, training the technical personnel and advising various departments of the Government. Besides this, the experience of preparing and implementing a Master Plan for Delhi, Basic Development Plan for Calcutta and the Structure Plan for Madras have distinctly enriched the planning methodologies being followed in India. Mention must be made in this context, of the experience that has accrued to the Physical Planners in India, through the exercise of preparation of plans for South East Resource Region, Damodar Valley Region and National Capital Region. These are landmarks in the fields of Regional Planning in India.

2.3 Evolution of Town Planning Legislation

2.3.1 Planning and development must have a proper legislative support to subserve the common good in the context of the present and the future needs. With a growing national consciousness for urban development and regional planning in the country's national development efforts, the need and urgency to provide effective legal tools at various levels have been emphasised and this has resulted in the enactment of various planning laws and regulations.

2.3.2 The earliest Town Planning legislation in India was enacted by the Government of Bombay in the year 1915 which was followed by other provinces, that is, United Provinces (1919), Madras (1920) and Punjab (1922). These enactments only provided for undertaking town improvement schemes and they did not intend nor did they provide for comprehensive planning which has now come to be accepted as a necessity for directing and regulating urban and regional development. A Committee on Health Survey and Development was constituted in 1946, under the Chairmanship of Sir Joseph Bhore. On reviewing the existing planning legislation in the country, it recommended the enactment of a uniform planning law to deal with urban and rural areas. The Committee further recommended that the Central Government should draw up a Model Town and Country Planning Law which could be adopted by the States. Following the recommendation, the first Model Town and Country Planning Law was prepared by the erstwhile Central Regional and Urban Planning Organisation (CRUPO) in 1960 on the basis of an earlier draft drawn up by the Institute of Towns Planners, India. The Model law has been constantly under review since then by taking note of the State Planning Acts in various States. With a view to ensuring better overseeing and coordination of planning with plan implementation, the Model Law which dealt with the planning aspects only has been reviewed and revised and now a combined planning and development law has been formulated by the Town & Country Planning Organisation in consultation with the concerned Central Government Ministries. Under this law, planning and plan implementation have been brought together so that a single agency could undertake both these functions.

2.3.3 Industrialisation, urbanisation and environmental degradation have given rise to another set of municipal Acts, public health laws, towns planning legislations and recently the environmental Acts.

2.3.4 The Government of India in 1976, introduced a new type of urban legislation called the Urban Land (Ceiling and Regulation) Act. 1976 with the objective of preventing the concentration of urban lands in the hands of a few persons and ensuring its equitable distribution. This Act is applicable to selected urban settlements. However, it has created more problems for proper physical planning and development due to its operational deficiencies.

2.3.5 A large number of urban planning and development related Acts have come into force during the last three decades at the Central and State levels. These set of laws fall into two categories: those directly related to urban planning and development and those related only indirectly to these aspects. The second category of Acts, include municipal Acts, mandi Acts, Land revenue Acts, village panchayat Acts, highways Acts, historical monuments and archealogical sites Acts, hill area Acts etc.

2.3.6 These legislations have helped urban planning and development to systematise the process and actions on different aspects, however, in the context of contemporary development planning, they are to be reviewed periodically to make them subserve the planning process.

2.4 Emergence of Urban Planning and Development Organisations

2.4.1 The historical study of cities since 3500 BC reveals that the development and maintenance of cities was always done by a separate agency. During the Buddhist period, the work of urban planning and development was performed by city/town councils. The Moghuls had a separate department for the same. During the colonial period, the rulers introduced their system of Municipalities and Improvement Trusts. India, after independence added the Urban Development Authorities, Special area and Special Function Authorities.

2.4.2. Genesis of the present problem of authorities lies, way back in the step taken during the colonial period when improvement trusts were created for carrying out capital development works, denying municipalities the role that essentially belonged to them. Now, there are a host of agencies involved in Urban Planning and development at various levels. The local governments are still kept weak and quite often superseded. The role of local government in plan preparation and plan implementation needs to be consciously evaluated.

2.4.3. Inspite of the increasing emphasis in the National Five year Plans for a balanced regional development, no serious effort has been made towards regionalisation and institutionalisation of regional development agencies. It is imperative on the part of the policy-makers to give more serious consideration to regional dimensions of planning and development and create necessary legislative and institutional apparatii for, achieving the balanced regional development in the country.

2.4.4. The Agencies such as Development Authorities, Housing Boards, Municipalities and Slum Improvement Boards are not adequately equipped with trained town planning personnel. The cadre of town planning personnel, if at all exists in these agencies, is weak and unable to play its professional role in an effective manner, inspite of the increasing role of these agencies in urban management and development. For the effective reorganisation of these agencies, it is necessary that adequate cadres of town planning personnel are established and the town planner placed in a position of authority from where he can play an effective decision making and managerial role in preparing and implementing plans.

2.5 Observations and Recommendations of various Committees on Urban Planning Matters :

2.5.1 Several important committees were appointed in the past by Central as well as State Governments to advise on specific problems. The observations and recommendations of these committees have been providing ideas for new directions in urban planning in India. Whereas the earlier committees concerned themselves mainly with the need for clearly defining the scope of planning and for laying down an elaborate institutional base for it, the later committees have devoted their attention mainly to the problems of plan implementation. Following were the committees formed related to the urban planning and development.

(i) Health Survey and Development Committee (Bhore Committee) 1946;

(ii) Madras Provincial Town Planning Enquiry Committee, 1949;

(iii) Committee on Development of Small Towns in Hill and Border Areas, 1963;

(iv) Committee on Urban Land Policy (Fazal-ur-Rehman Committee), Ministry of Health, Government of India, 1965;

(v) The Committee appointed for Regional Plan for Bombay-Panvel-Poona Regions, (Dr. D. R. Gadgil Committee), 1965;

(vi) Committee of Ministers on shortage of Town Planning Personnel (Rafiq Zakaria Committee), 1966;

(vii) The Task Force on Planning and Development of Small and Medium Towns and Cities, 1975;

(viii) The Task Forces on Housing and Urban Development of the Planning Commission, 1983 and

(ix) Task Force on Professional matters of Institute of Towns Planners India, 1986.

2.5.2 The Bhore Committee, in 1946 recommended the creation of ministries of housing, town and village planning at the Centre and in the States, establishment of central and provincial directorate of planning, adoption of comprehensive legislative acts all over the country, training and education of town planners and introducing procedures for planned development of towns and villages.

2.5.3 The Madras Provincial Town Planning Enquiry Committee (1949) was created to suggest ways and means for expeditious preparation, approval and execution of all town planning schemes. It particularly emphasized the need for preparation of town planning schemes within the stipulated period to avoid delays. It highlighted the need for expanding the scope of planning to simultaneously study regional and rural issues alongwith those concerning urban areas.

2.5.4 The Report of the Committee on Urban Land Policy (1964) has provided, for the first time, detailed guidelines for an Urban Land Policy with a view to achieving optimum utilisation of land. The Committee emphasized the importance of capital improvement, and budgeting as a tool for ensuring better implementation of urban area plans. The need to have a regional perspective for urban area plans was again highlighted.

2.5.5. The Committee appointed for Regional Plans for Bombay-Panvel and Poona Region (1965) (Dr. D. R. Gadgil Committee) formulated policies for decentralisation of economic activities from the central cities of metropolitan regions. Concrete shape for considering regional dimension of cities was given in the form of metropolitan regional development plans. It also suggested Regional Planning Act and highpowered regional development authorities to implement regional plan and co-ordinate the activities of various local bodies of the region.

2.5.6 The Committee of Ministers on shortage of Town Planning Personnel (1966) (Rafiq Zakaria Committee) deliberated in depth on the steps to be taken to augment the supply of trained town planners and also recommended the establishment of a permanent cadre of town planners at the State level.

2.5.7 The Task Force on Planning and Development of Small Towns (1975) suggested that a national land use policy should be formulated which in turn should be spelt out at the State level. It was of the view that effective spatial planning will contribute to development of small and medium towns and cities and would go a long way in mitigating the problems of metropolitan centres. For achieving a balanced system of human settlements it recommended the encouragement of small and medium towns and cities. It recommended strongly the increase in the allocation for urban development sector in the Five Year Plans be increased and equal distribution of the funds. It also suggested institutionalisation of integrated area development at district level and below for a realistic appraisal of the needs of grass root levels, availing local resources, entrepreneurship and in the process make planning a more down to earth process. Simultaneously, it favoured adoption of a transport policy for providing physical linkages between settlements, innovative methods for housing the poor and development of appropriate building materials, industry and techniques. The report recommended the setting up of Town and Country Planning Boards for physical planning, various levels of plans like Regional Plans, District and local physical plans for regionalisation exercises. The Task Force clearly emphasised the need for a strong and well organised system of local governments with structured executive cadres, professionally competent urban managers and improved revenue base. It also suggested the creation of Urban Development Corporation in each State to provide finance for remunerative projects of local governments.

2.5.8 The Task Force on Housing and Urban Development recommended that the responsibility for more detailed urban planning and development should rest with the Ministry of Urban Development. It has suggested that the Ministry should be redesignated as Ministry for Human Settlements. It also recommended the technical strengthening of the Ministry. The Task Force recommended that the Town and Country Planning Organisation should be re-oriented and enlarged as a strong technical arm of the Ministry. It also suggested that the function of the TCPO should be so extended and that it can develop capability in and be responsible for

(i) investment planning for urban development,
(ii) appraisal of urban projects,
(iii) setting and monitoring of standards in urban projects,
(iv) evaluation of urban projects,
(v) constant search and review of innovative urban programmes,
(vi) organisation of an urban information system and
(vii) training and research needs of urban development planning.

2.5.9 The Task Force of Professional Matters of the Institute of Town Planners, India (1986) has sought appropriate status and authority for planners. It has recommended that Town and Country Planners should not only be associated with Planning Commission and the State Planning Boards (Commissions) but with the Ministries also dealing with industry, environment, mining, power generation and transport both at the Centre and in the States.

2.5.10 The major court decisions on urban planning have also provided, from time to time, guidelines for strengthening legislative support related to planning and have therefore, been instrumental in increasing the implementability of plans. The imperative need of planning today is that settlement level planning should be integrated with economic development planning within the overall framework of spatial planning so that population holding capacities of areas based on resource availability can realistically be established.

CHAPTER 3

PRESENT STATUS OF PHYSICAL PLANNING IN INDIA

3.1 After 35 years of planned economic development, planned urban growth continues to remain isolated from the national planning process. In the Five Year Plans urban development is treated as an item of social expenditure, with the result it accounts for a very small fraction of the total plan budget.

3.1.1 Although urban planning (town planning) is in the State List, there are organisations of the Government of India that deal with the subject of urban planning and development. The main amongst them are the Ministry of Urban Development, Town & Country Planning Organisation (TCPO) and the Housing and Urban Development Division of the National Planning Commission.

3.1.2 However, inspite of the existence of these organisations at the Centre, there is no explicit urban policy at the national level. Consequently, the approach to urban development has been piecemeal and desultory, as described by the Task Force of the Planning Commission on Housing and Urban Development (1983). According to the Task Force, even the Scheme termed as Integrated, such as "Integrated Urban Development Programme" (IUDP) and 'Integrated Development of Small and Medium Towns" (IDSMT) were focussed on towns of different sizes: cities over 3 lakh population in the case of IUDP and towns under one lakh population in the case of IDSMT. The selection of the towns was quite erratic and little attempt was made at planning of urban development as a whole.

3.1.3 Other major scheme was the preparation of master plans for a large number of cities. These plans, however, were largely infructuous due to the lack of connection in the preparation of these physical plans (master plans) with investment planning at the city, State and national levels. The other main interventions were the metropolitan city and State Capital projects and various slum improvement schemes. In these cases, investments were in response to major service deficits which could no longer be ignored or, in the case of the new State Capital, investments were relatively lavish in the provision of high level of infrastructure. Some of the other lavish investments were in the establishment of new towns for public sector enterprises such as steel, electricity and fertiliser plants.

3.2 PHYSICAL PLANNING STRUCTURE AT VARIOUS LEVELS

3.2.1 **Local Level**

At present the local level (urban settlement level) structure for physical planning consists of different agencies. This structure operates with a master plan/development plan, State/national priority scheme, and day to day development issues of approvals and controls within its respective jurisdiction. The structure for physical planning at the local level includes the following agencies: Municipalities, Municipal Corporations, Improvemenf Trusts, Development Authorities, Notified Area Committees, Town Area Committees, Townships, Cantonment Boards, New Towns etc.

(i) *Municipalities*

These bodies were created by the colonial rulers to mobilise local fiscal resources for local works such as water supply, drainage, primary education, public health, roads and streets, parks and play-grounds, street lighting as well as enforcing building bye-laws and maintenance of local police force. Later reforms were introduced wherein elections were brought into local bodies, ultimately ending up with the process of introducing an elected council with an elected Chairman by 1920 under the Montague-Chelmsford Reforms. Most of the small and medium towns and cities in India are governed by municipal councils or committees or boards. They carry out the physical planning and development activities as stipulated under the Acts. They tend to fill the gaps left by State Town and Country Planning Department. They can even execute the schemes prepared by the Town and Country Planning Departments. These bodies are responsible for the enforcement and regulatory functions, the planning of growth and expansion and development of urban infrastructure, levy, assessment and collection of taxes and other revenues, management and maintenance of public properties, and raising of resources and provision of daily services etc. The local bodies though assigned these sort of major development, planning and maintenance works of urban centres, yet have been found incapable and lacking in financial and technical resources.

(ii) *Municipal Corporations*

The big and metropolitan cities are governed by Municipal Corporations. These bodies are different from the municipalities in the sense that they enjoy higher degree of autonomy and have direct contact with the Government as well as with the people. They are more democratic in constitution and have more resources at their disposal. Their obligatory functions include maintenance of public roads and streets, public health, sanitation, education, vital statistics, regulation of trade and commerce, water supply etc. Their discretionary functions include public housing, public construction, transport, electricity etc. Their functions are of the form of legislative rule making, civic, regulatory and developmental. The Corporations have wide powers of taxation to exercise these functions and thus they are better placed than local bodies to execute their functions. All the above form of functions have elements of physical planning and development and hence, within their jurisdiction they can carry out any development, urban renewal and planning works. Most of the corporations have separate Town Planning Cells as well.

(iii) *Improvement Trusts*

At present these trusts are found at a very few places and they are now-a-days phasing out as urban local governments. The main tasks of improvement trusts were to acquire land; sub-divide the land into plots for houses, open spaces, schools, hospitals, other public facilities and roads and sell the plots for private ownership and development in accordance with the rules prescribed. Development works such as construction of roads with street lights, drains, sewers, water supply and provision of electricity within the area covered by town planning schemes were undertaken by 'improvement trusts'. Whereas, in some cities improvement trusts were involved in road widening works and development of adjacent areas, at some other places they were engaged in improving extremely congested areas by slum clearance, and undertaking housing projects for the low-income groups.

(iv) *Development Authorities*

At the present moment, one of the expanding institutions in India is the urban development authority. The development authorities have been created to do mainly the physical development works including execution of development (master) plans within the area delimited for the authority. The First development authority was created in Delhi in 1957 and later Calcutta, Madras and other metropolitan cities established these authorities. This form of organisation grew very fast and today there are about 100 such authorities functioning in India. These authorities are given wide powers of acquisition and development of land, and its disposal besides carrying out other developmental activities. Most of these authorities, particularly which are in Delhi, Madras and Bombay have also planning works assigned to them. These authorities are contributing substantially in taking forward the development activities in big cities and Metropolitan areas.

(v) *Notified Area Committees*

This form of local government is generally notified for urban areas which does not become mature enough to have municipal status. They can perform only those functions as notified in the government gazette. However, they do possible physical development for the settlement for which they are notified. They also maintain the services and facilities in their settlements. These committees are categorised as non-representative form of local government but they operate under the State Municipal Acts. They are constituted in the States of Bihar, Haryana, Madhya Pradesh, Karnataka, Punjab and West Bengal.

(vi) *Town Area Committees*

These Committees do civic, regulatory and development functions. Their important functions include street lighting, drainage and conservancy. They are also responsible for repair and demolition of dangerous buildings. These Committees are placed next to municipalities but these are quasi-municipality type of local bodies, as some of its members are elected and some are nominated by the government.

(vii) *Townships*

Township is a bureaucratic form of government (as stated in a Report of Study Group on Local Bodies) and is found generally around single industrial settlements, industrial complexes and in small towns. These townships are established where high standard of civic services are provided at high cost. This high level of services create problem for surrounding areas necessitating other local bodies to cater for it. Townships perform functions of providing services like water supply, electricity, drainage, sewerage and other community facilities.

(viii) *Cantonment Boards*

These Boards are generally found in military cantonments having military and civil personnels. They function directly under the Ministry of Defence and are less democratic in nature. There are about 60 Cantonment Boards in the country. These bodies have obligatory functions of street lighting, sweeping of streets, regulation of dangerous and offensive trades, and water supply. Discretionary works includes reclamation of unhealthy localities, provision of electricity, transport etc.

The new Military Stations and areas of the existing contonments are well looked after a lot of attention is being given for the upkeep and maintenance of their environment. However, the civil areas of the cantonments are ill-maintained. A large number of them do not even have proper water supply or water-borne sanitation. The population in these areas has been increasing alarmingly without any expansion of either the land area or infrastructure. A lot of slums have developed and encroachment taken place by unauthorised construction. The condition of civil areas of Military Cantonments need urgent attention if these well-developed areas are not to go to complete rack and ruin by sheer neglect.

(ix) *New Towns*

The New Towns in India have been founded mainly for the purpose of housing a large industrial plant in most cases and administrative refugee rehabilitation purposes. Later fully planned towns with all services and amenities were created. All these towns are special purpose towns and 100 such towns are developed since independence. New towns are symbols of emphasis on urbanisation and on physical planning.

(x) *Metropolitan Regions*

Regional perspective of the settlements is lost sight of as the development authorities concentrate on a particular settlement. This problem was recognised long ago and efforts have been made to diffuse it. Regional plans were prepared for several metropolitan regions and they include Bombay Metropolitan Region, Poona Metropolitan Region, Nagpur Metropolitan Region, Ahmedabad Metropolitan Region, Calcutta Metropolitan Region, Bangalore Metropolitan Region and

National Capital Region. The above efforts, however, are not adequate. There are number of cities which have larger region than the planner expect or demarcates. Solution is probably cited in overall settlement policy and handing over the plan preparation function to the Central and State level planning departments so that better regional aspect is visualised.

3.2.2 State level

The State Town and Country Planning Department, Housing Board, Slum Board, Town Planning Wings of some departments, and Department of Environment are the agencies of the State Government that deal with the subject of physical planning and development. These agencies are created under special acts for special functions.

At the State level, almost all the States have established Town Planning Departments. However, the steps taken by the State Governments to give the State Town Planning Department an appropriate place and also adequately staff it with qualified personnel, are inadequate to fulfill its functions effectively.

The Organisation is generally on the pattern of Chief. Town Planner to the State with Senior, Deputy and Assistant Town Planners assisting him at the State Headquarters. In some States, (like Tamil Nadu, Maharashtra, Gujarat, Andhra Pradesh, Punjab etc.) they have also Deputy Town Planner level officer posted either in the division, region or district headquarters working under the direct guidance of State Town Planner and assisting the lower level district, local level, authorities in matters concerning town and country planning. These offices function as regional offices of the State Town and Country Planning Departments. The size of the State Town and Country Planning Departments varies considerably from State to State. Some of the Union Territories like Pondicherry etc., have separate town planning departments and some of the other Union Territories like Andaman and Nicobar Islands etc., have town planning sections in their Public Works Departments.

The Town Planning Departments in some of the States like Karnataka. Maharashtra, Andhra Pradesh, Kerala, Bihar etc. derive support from existing town planning laws and therefore, the Chief Town Planner is able to exercise statutory powers. In some other States, the departments have been created by resolutions of the State Governments and the position of the departments and its responsibilities change constantly leading to many uncertainities in the powers that can be exercised by officers at the district and local levels.

In the past, the functions of the State Town Planning Departments have been limited to the preparation of general development plans. Gradually, the responsibilities of these departments have been widened and there is growing realisation that these departments must be entrusted with the task of preparing a comprehensive physical planning framework for each urban area and within this framework fitting the various developments proposed by different departments of the States. This responsibility has also tended to define the functions of the State Town Planning Department more clearly and has resulted in the town planning department being consulted whenever physical development programmes are being considered. Almost all the State Town Planning Departments suffer from lack of qualified staff.

Preparation of master plans has been under way in India during the last five decades. The first comprehensive act requiring the preparation of master plans and authorising its enforcement is the Bombay Town and Country Planning Act 1954. About 1000 master plans have been prepared and many of them have got no statutory backing. The towns and cities for which plans have been prepared include the following categories: Refugee Townships; Growing Metropolitan Centres; and New Towns.

The general functions of the Town Planning Departments functioning at the State level include: advice to State Governments in all matters of town and country planning including legislation, planning policy and programmes relating to urban and regional planning, location of industry and other important projects, technical assistance and advice to local authorities in the preparation and enforcement of master plans, preparation of planning schemes involving housing, rural planning and housing, regional planning of priority areas in the State etc.

States like Tamil Nadu, Maharashtra, Andhra Pradesh, Uttar Pradesh, Kerala, Gujarat etc. have initiated work on the preparation of regional plans. The State Government of Tamil Nadu has prepared a comprehensive scheme dividing the entire State into eight planning regions and proceeded to formulate regional plan for each of these regions. The Andhra Pradesh Government has delineated the State into three planning regions for preparing comprehensive plans for them. In Maharashtra, regional plans for a number of regions have been prepared and approved by the Government for implementation. In Uttar Pradesh, the work on regional planning started during the Third Five Year Plan Period. In Madhya Pradesh, ten planning regions have been notified for the preparation of regional plans and the State Town Planning Department has taken up the plan preparation task for these regions. In Punjab, a number of regional planning studies have been carried out and the State has been delineated into three major planning regions and twelve micro planning regions. In Kerala, the Department of Town Planning is engaged in the preparation of district development plans besides the preparation of a spatial development plan for the State as a whole. Regional plans for urban areas like Greater Cochin Region and Calicut Region are also being prepared.

3.2.3 National level

The present constitutional arrangement of placing urban development in the State List does not seem to have affected favourably the physical planning efforts at the State and at the national level. Not only all the States have not come up with the requisite legislative support both for planned development and plan implementation but a few of them have also not taken any initiative to frame adequate planning programmes. This has hampered the physical development of settlements. Added to this is the vast difference in the programmes and their prioritisation between different States. All these factors seem to have adversely affected the evolution of a nationwide settlement policy which in the present context of rapid urban growth is of paramount importance.

The above discussion is not to suggest that it is only the State that can involve itself in physical planning efforts. A judgement of the Supreme Court in 1973 held that State legislatures can enact town planning acts based on either Entry No. 18 (land) of the State List or Entry No. 20 (Economic and Special Planning) of the concurrent list in Schedule VII of the Constitution. This proves that the central government can also initiate town planning legislations under the concurrent list.

At present there are some central government agencies which deal with the subject of physical planning and suggest policy directives though their roles are largely advisory in nature. Some of these agencies are the Planning Commission (Housing and Urban Development Division), Ministry of Urban Development, and the Town and Country Planning Organisation. Their physical planning efforts are briefly mentioned below:

(a) *Planning Commission*

The Planning Commission, as in other sectors decides on the total quantum of resources that are to be devoted to urban development for the country as a whole. It further allocates these resources between States and between schemes both for Central Sector and State Sector activities. Urban development investments are mainly in the State Sector except for some specific Central Sector Schemes. It is not, however, clear on what basis the allocation of resources to urban development is done. On existing schemes, the allocation is largely based on previous allocations. On World Bank assisted metropolitan and other projects. the allocations get determined by the size of the negotiated project. New schemes, e.g. the IDSMT, which appear in a Five Year Plan, are allocated some ad-hoc amount. In addition to the expenditures included in the head Urban Development as mentioned earlier, many more expenditures under other heads are made in industrial townships, by the railways and other organisations which go towards augmenting the total volume of urban infrastructure. At present, there is little coordination of these allocations with the Commission.

The existing Housing and Urban Development Division is one of the smallest in the Commission consisting of just 3 officers: one Deputy Adviser, one Senior Research Officer and one Research Officer. As such, little technical work and forward planning gets accomplished, the pressure of routine work being what it is. There is little capacity for ongoing analysis of urbanisation patterns, settlement patterns, evaluation of existing projects, etc.

The Perspective Planning Division (PPD) is responsible for intersectoral consistency and coordination as well as for long term projections for the country as a whole, disaggregated sectorally. As yet there is no urban/rural dichotomy built into the perspective planning model though more consideration is now being given to regional disaggregation. The other division that has considerable responsibility for physical planning related issues is the Transport Division which is responsible for urban transport policy as well. There is yet another division that should have been involved in spatial planning for urban development is the Multi-Level Planning Division. But there is no coordination between these divisions which are directly or indirectly concerned with urban development.

(b) *Ministry of Urban Development*

This Ministry is responsible for formulating nationwide policies/programmes and their implementation. The Ministry has a separate urban development division headed by a Joint Secretary. There are other divisions like a separate division for housing. Agencies like Housing and Urban Development Corporation (HUDCO), National Institute of Urban Affairs (NIUA) etc. are controlled by this Ministry. Central Public Works Department, Central Public Health Engineering Organisation (CPHEEO), National Buildings Organisation (NBO) and Town and Country Planning Organisation (TCPO) work as its attached/subordinate offices. The Urban Development Division as such does not have any technical person from the field of physical planning. TCPO mainly feeds it. The Ministry also looks after the World Bank Projects and other projects implemented with foreign aids. HUDCO is an agency which provide finance for housing and urban development.

The Ministry has been sponsoring studies and setting up Task Forces on the subjects related to urban development and planning. Reports of these studies have generated many policy frames during the plan period. IDSMT was launched on the recommendations of the Task Force on Small and Medium Towns and Cities (1977). IDSMT has main objectives of pooling resources for development of small and medium towns so that these towns can generate enough economic opportunities and livable environment in such towns and ultimately can become capable of arresting migrants heading for big and metropolitan cities. Guidelines for this scheme specifies type of projects to meet the objectives. Potential towns, having master plan/development plans are being given priority.

This Central Ministry, therefore, has been attempting towards introduction of proper physical planning process and for more resources allocation for the same. Its attempts have been marred more by resource inadequacy and low priority in the plan preparation process.

(c) *Town and Country Planning Organisation (TCPO)*

As a technical wing of the Ministry of Urban Development, the TCPO is an apex body in the country in the field of urban and regional planning. Its main function is to assist and advise the Ministry in the matters related with the field. It also carries out central sector projects and commitments of the central government.

TCPO has made substantial contribution in establishment of the field of physical planning in the country. It was instrumental in having created State Town and Country Planning Departments and presented a Model Regional and Urban Planning Act to be followed by the State Governments. The First ever master plan of any city of India, i.e., of Delhi was prepared, by this Organisation. It was the first to incorporate regional perspective in planning and subsequently National Capital Region (NCR) was demarcated. To increase physical input on regional basis it prepared a detailed plan for South East Resource Region. Various guidelines and manuals for preparation of physical plans for settlements were prepared after detailed survey and analysis. These manuals are being followed by many States which look forward to it for guidance. So, right from policy matter at the national level to the lowest level of plan of a settlement this organisation has contributed a lot to physical planning profession.

(d) The School of Planning and Architecture, New Delhi, which is a deemed University, is an important educational institution imparting educational facilities on various aspects of physical planning. The School also provides facilities for research, training and extension programmes.

(e) The Institute of Town Planners, India (ITPI) founded in 1951 has been contributing a lot to the profession of physical planning. It has over 1000 professional members. The first Model Town and Country Planning Act was prepared by this Institute which was later expanded and updated by the TCPO. It has been emphasising the importance and contribution of physical planners at various levels. It keeps arranging workshops and annual seminars in which experts of the field deliberate and recommend to update the government policies remarking on existing deficiencies. ITPI represents the profession, as an independent institute in the government circles.

(f) *Regional Planning Efforts*

At present regional/spatial development concept does not form an integral part of the national planning process. Regional planning at central level has been an inter-state level exercise. Regional plan for the National Capital Region (NCR) was the first in this aspect. The Third Five Year Plan emphasised the need for a balanced regional development and provided for the preparation of regional development plans for five resource regions namely, Damodar Valley, Dandakaranya, Rihand, Bhakra Nangal and Rajasthan Canal. In some cases, the regional plans have taken note of problem areas which are common to adjacent states, as in the case of Chambal Valley, where decoit menace led to a joint plan for development of the area to rehabilitate the people and provide opportunity for their social establishment. The Western Ghats Regional Development Programmes aim at the economic well-being of the people of the hill area, keeping in view the vital importance of ecological restoration and conservation.

3.3 AN APPRAISAL OF CURRENT PHYSICAL PLANNING PRACTICES

3.3.1 Since physical planning (town planning) is a State subject, town planning activity is governed by the terms of the State Town Planning Acts. The Act provides for the establishment of planning authorities at the city level for promoting and securing the development of the city according to a master plan or development plan. The plan indicates the manner in which the land is proposed to be used and prescribes development control measures for enforcing the land-use plan.

3.3.2 Experience has shown that the master plan or development plan as the principal activity of urban planning is a static concept. Whereas, in today's context, town planning must be seen as a dynamic, adaptive, iterative and continuous process of anticipating, planning and managing, social and economic change brought about by the economic development of the country.

3.3.3 The land allocation, in the master plan, is primarily based on population forecast and projection of some economic activity in terms of employment derived from population forecast. These forecasts are converted into various types of land requirements based on absolute a priori norms such as density, open space per unit of population and schools, health facilities, commercial centres and the like also on the basis of per unit of population. Further, such a planning exercise is infructuous because of the lack of connection in the preparation of these physical plans with investment planning, at the city, State and national levels.

3.3.4 A related criticism of existing town planning practice charged that attempts are made to control land use patterns without taking into account opportunity costs, or the fundamental needs of the city population for employment, shelter and other services privately supplied. They entail too many petty regulations, often reflect an attitude that looks upon business as a natural enemy of national growth; and in general are exclusively negative in slant and impact. On the contrary, the role of government in urban policy must be, at once regulatory and supportive. Accordingly, it is necessary to promote the optimal use of the resources of public and private institutions to attain developmental goals in urbanisation. The only sound town planning is a collaborative planing, and public-private partnership in this process is unquestionably the most critical condition of rational urban growth. Here the focus is on function rather than on form. The extent of the private partner's interest will depend on his ability to further national development, and not on any doctrinaire attitudes regarding his role.

3.3.5 If town planning (physical planning) is to make a positive contribution to our national development it cannot continue to remain a sterile form of activity. It is necessary, therefore, to shift the present emphasis on land use planning to that of guiding very complex, inter-related processes of social and economic change.

3.3.6 A precondition to this is the formulation of urban (city) development objectives in precise terms to provide appropriate guidance for land use planning and regulations. They must be described sufficiently to inform the urban planner as to the role of industry, of transportation facilities, of squatter settlements, and of other city phenomenon as generators of urban productivity.

CHAPTER 4

ROLE OF PHYSICAL PLANNING IN NATIONAL DEVELOPMENT

4.1 In defining the role of physical planning in national development, it must be quite clear as to what physical planning both as an activity and as a profession has to offer.

4.1.1 The physical planning profession is concerned with spatial development of human settlements—the use & development of land: and the physical planning process concerns with the design and management of the physical environment of settlements in accordance with predetermined and agreed policies, whereby balanced social and economic objectives may be achieved.

4.1.2 It is the concern of the physical planner to consider the spatial implications of various economic and social policies and to anticipate and plan for the spatial impact of activities generated by these policies. It is the formulation of these policies which constitute the principal activity of the physical planner with land use considerations stemming from the application of these policies. Physical land use plans are then designed as one of the instruments to promote the implementation of agreed policies.

4.2 Use and Development of Land

4.2.1 Land use is the most essential and the most precious of all our nation's physical possessions. Not only is the source of almost all natural resources, but it is also the platform on which most forms of human activity take place, and on which all human activity depends.

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4.2.2 The pressure caused by the rapid growth of our population, the agricultural and industrial development, housing, preservation of natural landscape, recreation, the expansion of motorised transport and the facilities required for these purposes are putting great strains on land use. The diminishing land-man ratio (from 0.94 ha/capita in 1951 to 0.33 ha/capita by the year 2001 A.D.), poses a serious challenge for preventing wasteful and uneconomic use of our inelastic land resource. Land at the urban settlement level is a scarce resource, to a much larger extent than at the national level.

4.2.3 The many and varied interests involved in land use and the competing demand for land and the growing importance of ensuring that land is put to the use to which it is best suited, due to its quality, its contents or its location, the greater becomes the need for physical planning to assess present and future requirements of land for various forms of human activity and, in the interest of our entire nation, to design the physical framework within which this activity, including all forms of development takes place in a planned, orderly and as effective a manner as possible.

4.2.4 This safeguarding of land against its wrongful, wasteful use or development is perhaps, the most important continuing functions of the physical planning process, a function which, in order to be effective must cover all aspects of the development process, from participating in the formulation of a national development policy, to the detailed application of such a policy through the medium of physical development plans at all levels from the regional down to the local level. This is only possible if the three essential and complementary aspects of development—the social, economic and physical, are considered together and coordinated from the very beginning.

4.2.5 In all planning the physical base is important, no doubt, but all improvements in physical environment have a higher purpose, namely the realisation of certain social values of our people. Hence, it is necessary to understand the inter-relationship between the social, economic and physical aspects. Physical growth should be in harmony with a well-defined social and economic needs and ends.

4.3 National Development Planning

4.3.1 The major objectives of planning in India are derived from the 'Directive Principles of State Policy' laid down in the Constitution, according to which the Planning Commission is to act. They are:

(a) That the citizens, men and women equally, have the right to an adequate means of livelihood;

(b) That the ownership and control of the material resources of the community are so distributed as best to subserve the common good; and

(c) That the operation of the economic system does not result in the concentration of wealth and means of production to the common detriment.

4.3.2 In consideration of these objectives, the Draft outline of the First Five Year Plan, for instance, had this statement: "What is essential for economic development on democratic lines is a diffusion of sources of power and instruments of production, which would release new springs of energy among the people and make them participate actively, in however small a sphere, in the functioning of a planned economy. It is now widely recognised that local autonomy and devolution of economic power are imperative in order to offset over-centralisation which saps initiative and enterprise".

4.3.3 In over 30 years of planning what direction has development taken? The pattern of development that has emerged is hardly in consonance with what is implied by the "Directive Principles of State Policy". Neither decentralised development nor reduction of regional disparities has been achieved to any significant extent.

4.3.4 With the execution of six Five Year Plans, and the Seventh in progress, our country has made considerable advances in industrialisation. The economic structure is gradually being transformed from a predominantly agricultural to an increasingly industrial one. A common feature of this change towards industrial development, however, is the high concentration of industries in established urban areas.* Since we have very few major urban centres, these development efforts, although planned on a national level for the entire country, find their reflection in progress concentrated in relatively small geographic areas in and around the major urban settlements. While these major cities experience a definite economic growth with record increase in population, many areas of our country have remained unchanged and unaffected by the national development efforts of the Government. Relatively, little consideration has been given to more balanced geographic distribution of development so as to enable areas outside the major urban settlements to share its benefits.

4.3.5 Economic development policies as embodied in our national plans have not directed sufficient attention to a balanced spatial distribution of economic activities and their accompanying phenomenon of urbanisation. The national planning policy is conceived more in terms of sectoral allocations, rather than of spatial incidence of economic growth.

4.3.6 While there has been growing realisation that an integration of economic and spatial factors in the planning process ought to be achieved for maximising the benefits of planned development, our present planning both at the national and state levels continues to remain predominantly sectoral in character.

4.3.7 The sectoral dominance of our national and state planning has resulted in lack of appreciation of the role that regional physical (spatial) planning and local urban planning should play in the overall strategy of our country's development planning process. Consequently, little attention has been paid to the location and distribution of economic activities and their impact on settlement patterns.

4.3.8 The present lack of perspective physical planning at the State-level precludes effective regional planning at the Sub-state level. District planning's failure to develop so far is due in part to the complete lack of any overall spatial (physical) framework towards which to relate. Urban planning (town planning) is done in isolation from either the Centre's or State's long-range investment policies or programmes, something that a national or state urbanisation programme could help overcome. Thus, an urbanisation policy would provide vital assistance to cities and districts. In fact, national development objectives, targets and policies could best be given their spatial dimensions and related to physical plans at local level only through regional physical planning, whose most useful role is of contributing towards the formulation of a national spatial strategy.

4.3.9 A national spatial strategy would have two important features—it would be long-term in nature, (since the achievement of societal goals through spatial change cannot be otherwise, even in rapidly urbanising countries), and concentrate on key aspects and processes of development. Thus, it is neither necessary nor some time possible or even advisable to deal with, which obscure the main thrust of future national and regional development. Some of those key aspects which could be covered include the desirability of the national settlement structure; the future distribution of population; the designation of growth centres and identification of development areas; the establishment of major transportation networks and interregional water and energy supply systems; the exploitation of natural resources including agricultural land; the locations of industries of national significance; the treatment of problem regions; and the consideration of major environmental issues. Thus, the spatial component of national development planning is a general scheme for the physical planning of priority areas, to be identified from an analysis of the entire country, in pursuit of its socio-economic and other established goals and objectives.

4.4 Regional Physical Planning in its relation to National Planning

4.4.1 The process of national development does involve regional development also; yet such regional development is incidental. It is only when the dimension of space is consciously introduced into the concept of sectoral investment plan for national development, that regional physical planning emerges as a separate activity and assumes significance.

4.4.2 It is essential to consider regional physical planning in relation to national planning, because without it major socio-economic conflicts would emerge. This is more so in a vast and diverse country, as ours, where the states have their separate histories, cultures, traditions and languages; where the states could be considered as regional units for administrative purposes. It is, therefore, imperative to give this factor due consideration in order that our planning system is structured to ensure national growth and regional growth at once.

4.4.3 Some regional development incidental to the national plan of development has been achieved by differential amount of investment made for the development of the states. However, regional development per se has not been the main consideration, because regional development concept does not form an integral part of the national planning process.

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*Calcutta, Bombay, Delhi, Madras, Bangalore, Ahmedabad, Hyderabad, Pune, Kanpur, Nagpur, Jaipur etc.

4.4.4 What is needed is a national policy for the economic development of regions, guided by objectives for the organisation of the national space economy, and of relating growth of individual cities and towns to the economic growth in their regions. In recent years, regional physical planning has proved a powerful tool in achieving national development goals, like increased gross national product, efficient resource allocation and more equitable distribution of economic benefits.

4.5 **Regional Spatial Planning at the State Level**

4.5.1 The basic decisions and expenditures that actually shape the urban-industrial pattern, are largely public, such as resource development projects, transportation and utility lines, housing and other urban improvements, as well as public measures to develop, encourage or control industry. Moreover, these programmes are largely administered by the State Governments which would indeed facilitate spatial (physical) planning on a regional basis. Regional planning at the State level would attempt to relate local needs within a framework of the State's spatial economy and thus, would begin to suggest alternative course of action for Centre/State resources.

4.5.2 Physical planning can make its greatest contribution at the regional level, for it is at this level that national development policies can best be translated into physical (spatial) form and, through the preparation of regional plans, provide the detailed framework for development. It is also at regional level, that through a constant two-way exchange of information, national development policies and local needs and aspirations can be best reconciled.

4.6 **Increasing Planning Initiative in the States**

4.6.1 The States are already active partners with the Central Government in economic planning, each with its own Five Year Plan budget. As mentioned earlier they also make most of the major decisions with respect to resource development and public works, industrial location and industrial estates, village development, town planning and housing. All that seems to be needed is to coordinate these programmes in terms of a general area development plan for the State, or for regions, which require particular concern. In fact, if the States were merely to map their Five Year Plan investments (budget), this could be a highly significant step, towards the integration of rural, industrial and urban development. There is also the need to reorient the thinking of key officials in our sectoral agencies to relate their activities to the national objectives for regional and sectoral development. This further strengthens the need for locating regional development planning function at the State level.

4.6.2 Once regional spatial (physical) planning is made an integral part of the national planning process; such "bottom-up" approach in planning has much to commend it. For instance a regional physical plan identifies the existing and potential physical and human resources in the State or the region as well as the main constraints. It is thus a means to mobilise all regional resources to the maximum possible extent. It will enable national and state policy makers to formulate and implement polices to redress growing regional imbalances in the country in terms of employment, income, socio-economic services and the like. Regional spatial (physical) plans can add a new dimension to the national planning process as they emphasise horizontal integration, i.e. the links between ministries and sectors, rather than purely sectoral programmes. A comprehensive regional physical development plan demonstrates the context in which the proposed programmes and projects are implemented and shows how the various plan components are interrelated.

4.7 **The Organisation of Physical Planning**

A physical planning service, in order to be effective on development, has to be made an instrument of government policy. But such a service is likely to have limited value if the role of physical planning remains a subordinate one, as it is today, at the local urban level.

It is imperative that the physical planning service be given a position of independence and authority within the development planning process, free from undue influence from any source, from which it can arbitrate on the many and conflicting demands on land use, and can offer unbiased professional advice concerning the physical implementation of economic and social policies and programmes.

Therefore, in order to deal effectively with the physical (spatial) planning problems generated by economic and social development of our country, the Government of India must consider the establishment of physical planning process on three tiers of public administration namely, the national, state/regional and local (district and city/town).

4.7.1 **National level**

At the national level there is the Planning Commission headed by the Prime Minister, which is responsible for advising on and preparing national economic development plans. What is needed is the introduction of the physical (spatial) planning service, at the centre, working alongside the Planning Commission. The Central Authority might carry on the following function:—

> Preparation of national physical development guidelines and strategies the key aspects of which could cover the national settlement structure, the future distribution of population, the designation of growth centres and the identification of development areas, the establishment of major transportation and communication networks, and interregional water and energy supply systems, the exploitation of natural resources including agricultural land, the location of industries of national significance, the treatment of problem regions and the consideration of major environmental issue.

Thus, the spatial (physical) component of national development planning is a general scheme for physical planning of priority areas to be identified from an analysis of entire country, in pursuit of its socio-economic and other established goals and objectives;

Coordination of regional development plans with the framework of the national physical development guidelines;

Review and furtherance of necessary integration among different agencies concerned with physical planning; and

Formulation of appropriate legislation for urban and regional planning.

4.7.2 State level

The State Governments, in order to develop their territories, should constitute State Planning Boards. This machinery for State/Regional physical planning should be an independent body, preferably statutory, and should be directly answerable to the State Cabinet for all its findings and conclusions.

In a country as big and as diverse as India, the future development of the country would have to be organised by means of regional physical plans as spatial counterparts of the State's sectoral investment plans and where the States would have to be considered as regional units for administrative purposes. Through, regional physical (spatial) plan, inter-sectoral coordination and integration; which is lacking at present, can be successfully achieved. Regional physical plan takes into account the problems of the inter-relationship of industry and agriculture, of the character and structure of the human settlements arranged in a hierarchy according to the functions performed by each.

The fiscal base of most of our cities has been deteriorating as a result of limited local resources and rising social needs of the urban population, amidst the lack of any clear Central, State and Local coordinated fiscal policy on urban infrastructure development. Therefore, regional physical planning at the State level could attempt to relate local needs within a framework of State's spatial economy and thus would begin to suggest the alternative course of action for Centre/State resources.

Besides, existence of the State planning machinery will ensure that national investment decisions are taken in the full knowledge of State's priorities, and that the State context into which the city/town plans must fit accords with national investment policy.

4.7.3 Local level

(a) *District Level*

It has been the Central Government's policy to direct an increasing share of the available resources towards the development of the rural areas. For any successful rural development, there should be greater decentralisation of development planning and implementation to the district level.

As a step towards decentralisation of development planning, there is a proposal for giving the district a place in the Constitution of India as a unit of administration for the allocation of funds and for accountability. An elected "District Panchayat" will be charged with the responsibility for planning and implementation of district development plans. The district administration will also be included in the devolution of funds similar to the pattern of devolution of funds by the Finance Commission to the States. It would cover all the plan funds received by the State Governments under the State Plan, Central Schemes and Centrally sponsored schemes.

Unlike the current approach to the District Development Plan, the District Panchayat should concern itself with the spatial distribution of services such as education and health facilities within the identified service centres within the framework of the recommended urban development strategy. The plan should also identify the development resources in the district. Further, the District Development Plan should be project-oriented. Like projects for generation of employment opportunities, for development of agriculture and rural industries, so that readily distinguishable programmes emerge and the plan indicates institutions to undertaken action, estimates of costs and technical personnel needed.

(b) *City/Town Level*

At the urban settlement level, physical planning (town planning) should be made an administrative function of formulating policies, programmes and projects for accomplishing urban development objectives within the structure of the city government. The physical planning department of the city should be responsible for translation of the State/Regional plan in so far as it affects the city/town under its jurisdiction, in their physical development plan.

At the city level, physical planning is subject to man-made factors, involving the relationships between intra-urban transportation pattern, work and living places. It involves specifics of land use patterns and functional requirements of individual cities and towns.

Unless the city proves an efficient environment for carrying out its productive and trade activities, the erosion of its economic base may result. Land use planning should be just as concerned with economic growth as are national and State/Regional planning. Just as national planning must be based on sound rules of industrial location—and economic planners will consider whether an industry is resource-oriented, labour-oriented or market-oriented — so also local urban planning must be based on sound rules of localisation. This implies that the special requirements of different industries reach down into the local urban area level.

Therefore, land use plans on which development controls are grounded may indeed may be antidevelopment if they do not meet the special requirements.

A precondition is the formulation of urban developmental goals for the city/town in precise terms to provide appropriate guidance for land use planning and controls. The goals must be described in sufficient detail to inform the town planner as to the role of industry, of transportation, of squatter settlements, and of other city phenomena as generators of urban productivity.

Therefore, at the city level there is an urgent need to make urban management more efficient and responsive to urban needs and demands. The institutional structure of municipal government inherited from the British Raj has proved to be grossly inadequate to manage contemporary urban problems. They are not structured to cope with rapid urban growth or to manage cities of several millions of inhabitants.

At present there is a separate urban development authority in some cities, which is only tenuously connected with municipal government. These independent urban development authorities have not been effective in providing for the continuously changing needs of the city. City planning should emerge from the people themselves. If the responsibility is placed on the city government, it is probable that the city development plan that emerges will prove more acceptable and easier for implementation.

This, broadly speaking is the organisation for physical planning in India. The important fact about such an organisation for planning is the clear distinction between the functions of the national level planning body and the State and local planning bodies. While the need for physical planning occurs separately as national, state and local levels, yet each level is inter-dependent forming a complementary part of the whole comprehensive physical planning process.

At the national level physical planning policies and strategies must conform to national economic and financial constraints and social objectives, must be based on regional analyses and evaluations, and must be implemented at the local level, aiming to meet local human needs and aspirations.

At the state or regional level development plans must conform with and give physical expression to national economic and social objectives, must be based on regional surveys of local conditions and needs and must provide a framework for the implementation of development plans at the local level.

At the local (urban) level development plans prepared in much greater detail must make provision not only for the implementation of development programmes and projects but for all forms of human need and activity. Constant consultation, evaluation, coordination and integration are necessary, and this process must be built within the machinery of the Government.

4.8 The role of Physical Planning Profession

4.8.1 By the turn of this century, India will have added 135 million to its present urban population of 180 million. The herculean task that the physical planners have to face is how to effectively plan for the accommodation of 135 million additional people in urban areas to be built within a span of much less than 40 years, the time it has taken to build India's existing cities and towns.

4.8.2 This calls for the physical planning profession (Institute of Town Planners, India), to reassess its position, its practice, theory and research to enable it to provide answers to problems generated by rapid urban growth.

4.8.3 The role of physical planner should not be confined as it has been, to the local (urban) level only, to the design and layout of urban settlements, housing areas, industrial estates and efforts to control development in cities and towns. The planning profession must ensure that its services are also made available for influencing policies, plans and programmes at both national and regional (state) levels.

4.8.4 If physical planning has to play an effective role in national development then it must be allowed to influence and contribute to the formulation as well as the implementation of national development policies and programmes helping to ensure that land and other resources are used and developed in as effective a manner as possible, to serve the needs of the country, instead of its limited contribution through the preparation of regional and local development plans, after national development policies and programmes have already been decided.

4.8.5 However, this will depend to a very great extent on the convictions of members of the physical planning profession, on their ability to describe and demonstrate the value of the service they wish to provide, and on the influence and persuation they are able to extract on the Government and the society through the Institute of Town Planners, India, which is the sole body of professional planners in the country.

4.8.6 Though physical planning (Town Planning) has received recognition as a profession in our country, the need for a land use planning service at the regional or national level is not even thought of. The strengthening of the physical planning profession, therefore, implies first of all recognition by the Government of the contribution which physical planning is able to make towards orderly and effective development. For on this will depend the location and authority of the posts which should be created for physical planners in the echelons of the Government, both at the Centre and in the States.

4.8.7 Much depends on the Institute of Town Planners, India, on the role it will have to play in the development of adequate educational facilities for the profession, coordinated with adequate research facilities, each having the ultimate aim of broadening knowledge and understanding and disseminating it into the realm of professional practice.

CHAPTER 5

LAND POLICY AND LAND USE CONTROL

5.1 OPTIMUM USE OF LAND AS A RESOURCE

5.1.1 Load as a Scarce Endowment

Land is a precious endowment. It is a natural resource which is limited in extent and exhaustible. Land is the base and the platform for all human activities. Every person, structure, article or effect must stand somewhere on land. Ownership of land and buildings is not only a physical wealth, but also a symbol of social esteem and economic status of the individual and the family. In the absence of a well developed capital market, land is considered as an important asset and is often a major component of investment. An ownership of land and buildings is, however, limited to a relatively small percentage of the population, so is its distribution clearly more unequal than that of income. It is, therefore, necessary to devise policies which reduce the excessive concentration of ownership of real property in the hands of a few people and making access to land market each for low income households. Such a measure also improves income distribution. It is recognised that one of the methods of redistributing wealth and income lies in intervention in the land market. It has been proved that investment in land acts as a hedge against inflation.

5.1.2 Factors Influencing Land Values

land has diverse physical characteristics and dimensions. It is also subject to competing, and often conflicting, demands and uses. It is, therefore, of vital importance to resolve this conflict by deciding the most rational and appropriate use of land, so that it may improve physical environment, strengthen economic base, conserve ecological equilibrium and foster social values. The location, extent and quality of available land resources and the manner in which they are used determine to a considerable extent the health, wealth and well-being of the community. As land is a scarce resource, it is necessary to conserve land and optimise its use. Population expansion, urbanisation, economic growth and social change have significant impacts on land use and land values. There are strong correlations between land uses and traffic conditions. The supply of land in urban areas is to a large extent inelastic, owing to the high cost of developing land, and the long period of time required to develop.

5.1.3 Land as a Factor production

In view of its importance as a resource, land should be conceptualised as basic factor of production, along with labour, capital and management and as source of raw materials such as food, fibres, minerals and energy. Land should also serve social needs of individual, the family and the community. Land should, therefore, be looked at in its totality; improved, developed and worked or built upon. Land is much more than just a natural surface. It includes land in its fullness, all that nature bestows on land; soil, water minerals, fauna and flora, and in addition, all the works of human endeavours such as roads, networks, buildings and structures, both superjacent and subjacent.

5.1.4 Land as a Changing Entity

Land has not only the present value or the use value, but also the potential value or the opportunity value. Land has spatial coordinates and time dimensions. Land and its use must, therefore, be conceptualised, in space, time and architecture. Though land is static, it is changing entity and its use is dynamic and changes over a period of time, due to natural phenomena as well as man-made efforts. While all other goods or commodities depreciate in value over a period of time, land normally appreciate in value, especially in prime areas of urban centres. Land value depends on its location and physical attributes.

5.1.5 Low Land-Man Ratio in India

The population pressure on land is very severe in India. In 1951, the land-man ratio was about 0.94 hectare per capita. At present, it is only 0.42 hectare per person; and will reduce to about 0.33 hectare by the turn of the century. In addition to the declining land-man ratio, the exploding population and massive urbanisation will necessitate an additional 6.5 million hectare of land to be devoted to urban and other uses, by the turn of this Century. In 1981, the land committed to uses such as urban and rural settlements, road and rail networks, mining and industrial activities and water sheets, accounted for 5.9 per cent of the land surface. This is estimated to rise to 7.4 per cent by the year 2001. At present only 2.6 per cent of the topographically suitable area of India is devoted to urban uses and is inhabited by over 30 per cent of the total population. By the end of this century, the land area devoted to urban areas alone will have risen to about 5.2 per cent of the usable area, accommodating nearly 400 million people or 40 per cent of the total population.

5.1.6 Objectives of Land use

It should be evident that land, especially usable land, is very scarce and that every effort should be made to optimise its use and minimise its misuse and disuse in urbanised and urbanisable areas of our towns and cities. This objective cannot be achieved unless a comprehensive and progressive policy of urbanisation is formulated and implemented.

5.2 FORMULATION OF A LONG-TERM URBAN LAND POLICY

5.2.1 Need for a Policy

Planning for the development of settlements and shelter should be preceded by a long-term and comprehensive land policy designed to achieve the best use of land which would increase productivity, efficiency and economy. Such a policy is very much needed today in India to arrest further deterioration of the urban scene and to give a more positive and purposeful direction to urban development and housing.

5.2.2 Trends in Urbanisation

The progressive urban land policy should be formulated in the context of the following trends in urbanisation and metropolitanisation.

(a) Urbanisation in India is massive, though not rapid;

(b) Urbanisation has just started and sure to gather momentum;

(c) Urbanisation is necessary to relieve excessive pressure on rural land;

(d) Urbanisation is not a calamity but a necessity;

(e) Urban population is growing faster than the national rate of population increase;

(f) metropolitan cities are growing in area and population at unprecedented rates during the past few decades;

(g) Urbanisation is not accompanied by a commensurate degree of industrialisation, transportation, communication and modernisation of economy;

(h) Urbanisation has led to rapid deterioration in environment and colossal deficiencies in housing, public utilities, municipal services and community facilities.

(i) the urban poor are finding it very difficult to have access to shelter and services, resulting in the proliferation of slums and squatter settlements;

(j) local governments are not able to deliver municipal services as their tax-bases are becoming increasingly weak;

(k) Urbanisation and metropolitanisation are characterised by urban sprawl and suburban decay;

(l) Urban and regional planning is lagging far behind the forces of urbanisation and urban growth;

(m) There is a tremendous demand for and pressure on urban land, especially on the periphery; and yet a substantial percentage of land within the urbanised limits remains either underdeveloped or vacant; and

(n) there is need to utilise developed land more intensively.

5.2.3 Land Policy Issues

In the light of these trends in urbanisation and urban growth, the urban land policy has to be formulated with due regard to the following relevent issues;

(a) acquisition of land required for public purpose expeditiously and at reasonable prices;

(b) enabling the urban poor to have access to land for shelter at prices they can afford;

(c) principles and methods of development and disposal of land which are conducive to integrated urban and regional development;

(d) preventing undue speculation in land and stabilising land values;

(e) measures to mop-up unearned increments;

(f) using land as an urban resource and a tool for urban development;

(g) legal instruments to achieve land urban policy objectives, especially land use controls, subdivision regulations and building codes;

(h) evaluation of the Urban Land Ceiling & Regulation Act and the Rent Control Act and their impact on land values, and provision of land for housing the low-income households in urban areas;

(i) Financial and taxation measures to prevent land hoarding and increasing the supply of land to the market and thereby reducing land prices; and

(j) innovative techniques such as Land Pooling and Land Banking systems, cross-subsidising and self-financing methods to promote development and disposal of land by public authorities as a means of implementing urban development and redevelopment projects.

5.2.4 Land Policy Objectives

In the light of the urban land issues mentioned above, the urban land policy should be based on the following objectives:

(a) achieving efficiency and optimisation in the socio-economic utilisation of urban land as a resource;

(b) ensuring availability of land to an adequate extent at the right time, at the right place, and at the right price;

(c) equity in the distribution of benefits from urban land, to avoid monopoly of land ownership in the hands of a few private individuals and safeguarding the interest of the poor and the less-privileged sections of the urban community;

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(d) encouraging cooperative community effort and bona fide individual builders in the field of land development; housing and construction;

(e) strengthening the economic base of the city; and

(f) augmenting tax-base of the local authority with a view to enabling it to undertake urban infrastructure projects on a massive scale, and help overcome the colossal deficiencies that exist at present.

5.2.5 Land Policy as a Part of Urban Development Policy

The Urban Land Policy should be viewed as an integral part of urban development policy of India, which in itself should be considered as a part of the development policy of the Country, which is influenced by the socio-economic and political structure and the level of development. In fact, the urban land policy should be in harmony with the urbanisation policy, urban development policy, industrial location policy and transportation policy. The urban land policy cannot be evolved in isolation.

5.2.6 Land Policy in the Five Year Plans

Since the advent of independence (1947), several attempts have been made in India to review the policies relating to urban land development and disposal, and to achieve equity and efficiency. Nevertheless, India cannot claim to have a long-term urban land policy either at the central or the state and local levels. However, this vital subject has attracted considerable attention during the past four decades. The successive national development plans of India have, since 1951, highlighted the problems and potentials of urban land development and stressed the need for evolving a rational, scientific and efficient and urban land policy, though in reality such a policy is yet to be formulated, 38 years since the beginning of the First Five Year Plan (1951).

5.2.7 **The First Five-Year Plan (1951-56)** stressed the need for improving the environment in our settlements and making adequate land available for shelter and settlement projects. The Second Five-Year Plan 1956-61 raised the issue of a long-term urban land policy for India and pointed out that access to land should be made easy for the low-income and economically weaker sections of the society.

5.2.8 **The Third Plan (1961-66)** recommended that the spiralling land values in urban centres should be checked and suggested several measures, including among others, levying tax on vacant parcels of land in developed areas, imposing a ceiling on plot sizes, freezing of land values, bulk acquisition of land by local authorities for public purposes, and allotment of land on lease-hold instead of free-hold basis.

5.2.9 Fazlur Rahman Committee

In 1962, the Central Regional and Urban Planning Organisation, Ministry of Health, Government of India (now the Town and Country Planning Organisation, Ministry of Urban Development), in a "Note on Urban Land Policy", gave for the first time a very comprehensive review of the position regarding urban land and made a strong case for a policy framework. Subsequently, the Ministry of Health, Government of India appointed a Committee (1963) under the Chairmanship of Mr. Fazlur Rahman, to look into the problems and make suitable recommendations. The Committee gave a comprehensive report and stressed the need for a rational urban land policy, acquisition, development and disposal of land in urban areas, and fiscal and legal measures for the successful implementation of the urban land policy.

5.2.10 **The Fouth Five-Year Plan and the Fifth Plan (1974-79)** accepted several recommendations of the Committee referred to above and suggested a number of spatial, fiscal and legal measures to achieve the policy objectives.

5.2.11 It was again during the Fifth Plan Period that a law was enacted; Urban Land (Ceiling and Regulation) Act, 1976, which aimed at preventing excessive hoarding of land by a few individuals or families and releasing the surplus land for public purpose uses by local authorities.

5.2.12 **The Sixth National Development Plan (1980-85)** highlighted the severe limitations of the Urban Land (Ceiling and Regulation) Act and suggested a periodic analysis of Urban Land market and assessment of land values and property taxes.

5.2.13 **The Seventh Five Year Plan (1985-90)** states: "In the small towns and the new centres, the strategy should be purchase land,.. .... at short notice, before land values begin to rise, quickly providing the infrastructure facilities within a period of 2 to 3 years and then selling land to the public and private sectors. In this way, the public authority could make two major gains: (i) The profit from site development; and (i) The gains through purchases continuously, withdraws land for short period and continuously puts these back into the land market, there may not be an inflation of real estate prices. In that case, the rise in the cost and rents of houses would be limited.

5.2.14 Several State Governments Local Authorities have similarly undertaken some fiscal, legal and physical planning measures within the overall framework of the Central Government instruments. In spite of all these efforts which are rather ad-hoc and disjoined, no comprehensive, long-term and rational urban land policy has emerged.

5.3 LEGAL FRAMEWORK FOR URBAN LAND POLICY

The Urban Land Policy has several statutory dimensions. The law governing the acquisition, development and disposal of land by public authorities; the Urban Land (Ceiling & Regulation) Act, 1976; land use controls, which include zoning, sub-division regulations and building bye-laws; land value freezing; and expropriation of vacant parcels of land are some of the legal instruments to be reviewed in the process of formulating a progressive, long-term, urban land policy.

5.3.1 **The Land Acquisition Act, 1894**

The Central act is the main legal tool which gives pre-emption rights to public authorities in India to acquire, develop and allot land for *public purpose;* This Act is nearly a hundred years old and obsolete. It is the most challenged act and has numerous amendments to it, amendments being lengthier than the act itself the shortcomings of this act are numerous:

(a) The legal procedures to be followed for acquiring land are cumbersome, dilatory and costly, resulting in inordinate delays.

(b) Very often, land owners contest in law whether the purpose for which land is intended to be acquired is a public purpose.

(c) Land owners claim Potential Value or Opportunity Value for their land, and not the use value. The Market Value of land on the material date, which is the most common basis for determining the compensation, puts a heavy strain on the finances of public authorities and severely restricts the scale of their development and redevelopment operations.

(d) The failure to agree upon a Fair Price often results in legal procedures of appeal, hearings and litigations in Courts of Law, which hold up taking possession of land for long periods.

(e) The Land Acquisition Act also requires an additional payment of Solatium or Contingent Losses, over and above the assessed value.

(f) Land owners always plead for enhancing the compensation; on the other hand, they are reluctant to pay Betterment Levy;

(g) Techniques of valuation of real property, which facilitate the assessment of compensation to be paid for lands and buildings, are not well-developed.

(h) Assessment of compensation to be paid and betterment to be collected are often hampered, as records of sales and purchases of lands and buildings and Registers of Titles are not kept accurate and upto date.

The Land Acquisition Act of 1894 must be comprehensively reviewed and revised to make acquisition procedures simple. As it is in many Countries (Singapore, Sri Lanka, Hong Kong). The determination of Public purpose should be matter of executive discretion and should not be contestable at law. The Compensation procedures are at present extremely dilatory and complicated. The only way in which accumulated unearned increments and potential development values could be removed from the compensation calculus would be to peg land values to some earlier date. Thereafter, adjustment for increase in the cost of living index should be applied. As in Sweden, a fixed criterion should be established. For instance, the compensation to be paid should be the market price ten years before the beginning of expropriation, adjusted by consumer price index. The solatium should be abolished. The land values should be systematically and periodically evaluated. Enabling public authorities the right to take possession of land needed for public purposes before expropriation and compensation procedures are completed is another improvement required in the procedural system. It allows development works to be undertaken on time, without the delays caused by negotiation over the basis and quantum of compensation and also delays in establishing legal titles to the land.

5.3.2 **Urban Land (Ceiling and Regulation) Act, 1976**

In the year 1976, the Government of India introduced this Act with the following objectives :

(a) preventing the monopolistic ownership of land by only a few person and bringing about a more equitable distribution of existing large urban holdings;

(b) devoting the land in excess of the ceiling for public purpose;

(c) checking speculation and profiteering in urban land; and

(d) to mop-up the un-earned profit for the benefit of the community.

The Act provides for:

(a) imposition of a ceiling on vacant land, on a grade scale, on the basis of the sizes of the cities;

(b) acquisition of the excess vacant land by the Government, with powers to dispose of the vacant land to subserve the common good;

(c) granting exemptions in respect of certain specific categories of vacant land;

(d) regulating the transfer of vacant land within the ceiling limit;

(e) regulating the transfer of urban or urbanisable land with any building for a period of ten years.

(f) restricting the plinth area for the construction of future residential buildings; and

(g) Payment of an amount in cash or in bonds for the acquisition of the excess vacant land.

If a person intends to retain the excess land, he may be permitted to do so, if he undertakes to use it to build residential accommodation for the weaker sections of the community. The Act also exempts institutions such as charitable trusts, cooperative societies and educational, cultural, technical or scientific bodies from the purview of the Act.

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Since this Act was put into operation, it has been very much criticised on account of the following drawbacks.

(a) It has not achieved its objectives.

(b) Imposing ceiling on land holdings is theoretically attractive from the point of view of redistributing land and wealth and for acquiring land for public purposes. It has, however, posed formidable technical and administrative problems.

(c) It has led to fragmentation of land into small parcels.

(d) Granting of exemptions has given rise to corruption and favouratism.

(e) It has led to fragmentation of land into small has been actually acquired.

(f) In many cities cadastral maps are outdated and defining property boundaries is a formidable procedural task

(g) It has dried up the supply of land for housing, especially for the middle and low-income households.

(h) Mopping of unearned gains due to increases in real property values and prevention of speculation in land and buildings have not been achieved.

(i) The main objective of redistribution of urban land, in the interest of equity, has not taken place.

(j) Public authorities have not been able to get much land under the provisions of this Act.

In view of these limitations, a fresh look at the Act is necessary. It should be possible to device ways and means of procuring excess land for the public authorities and cooperative housing societies, without much delay and without litigations. In this connection, it may be worthwhile noting the procedure being adopted by the Government of Gujarat. It is learnt that in practice 40 per cent of the excess land is permitted to be retained by the owner and the remaining 60 per cent to be surrendered to the Government, free of cost. The State Government in turn allots this 60 per cent of excess land to the State Housing Board for the development of group housing. The Housing Board thus gets land free and without any legal constraints and long-drawn procedures. The land-owner is required to devote the land released to him for residential or commercial purposes, in conformity with the development plan for the city or the town planning scheme. Such innovative measures are worth considering.

5.3.3 Rent Control

Rent Control Regulation is one of the oldest and the most controversial statutes in India. It was introduced during 1940's with the following objectives:

(a) to protect tenancy rights of occupants and to prevent undue evictions;

(b) to fix a 'fair rent' or 'standard rent';

(c) to fix responsibility of owners to maintain buildings and premises in a good state of repair.

(d) to ensure prompt payment of rent by tenants;

(e) to prevent misuse of accommodation; and

(f) to ensure restoration of possession of accommodation by the tenants to the owner, under certain circumstances.

In actual practice, the law relating to the control of rent has become vexatious. It has aggravated the housing and urban development situation. The following are the adverse effects.

(a) It has always worked in favour of tenants, at the cost of owners. It is not always the case that tenants are poorer than land-lords. Even though many tenants can afford increased rents, they refuse to pay. The owner does not get a fair return on his investment.

(b) Because of this, landlords do not maintain buildings in a good state of repair; nor are the tenants interested in spending money for the upkeep of the buildings.

(c) The most serious repercussion of the Rent Control Act is that it has to a great extent dried up investment in rental housing. The quantity and quality of rental housing have deteriorated steeply.

(d) It has resulted in inefficient and sub-optimal land uses and perpetuation of less-remunerative uses.

(e) It has reduced the mobility of households and labour.

(f) It has contributed to phenomenal increase in the production lands and buildings and distorted the price structure.

(g) Apart from the depletion of the urban housing stock, the revenue to local authority is virtually frozen. It discriminates against owner-occupants of dwellings.

(h) In terms of economic efficiency, rent control has become inefficient and counter productive.

(i) The central areas of cities are more adversely affected than other areas, because of high land values and poor upkeep of buildings and premises; it has led to blight and obsolescence of the inner city.

(j) It discriminates against potential tenants;

(k) It has limited the liquidity of assets in the market;

(l) It has led to rampant corruption and favouritism, and activation of a parallel economy. Heavy amounts, mostly unaccounted, are paid to tenants to vacate the premises.

Rent control is a double-edged weapon. Neither the landlords nor the tenants find the Rent Control Act operationally satisfactory. What is needed is reformation without tears. The main thrust of the reformation should aim at :

(a) protecting tenancy, but at the same time, allowing increase in rent at three-years rest, in an incremental manner;

(b) making provision for increase in the rent in such a manner that the owner is able to pay for repairs and maintenance, the increase being linked to the cost of living index;

(c) the rent hike should be sufficient to pay for periodic revision and increase in assessment by the local authority, with a view to strengthening its tax-base;

(d) giving incentives such as tax relief on income from rental housing, especially shelter for low-income groups and economically weaker sections of the community;

(e) delinking non-residential tenancies from residential ones and exempting the former from rent-control;

(f) exempting low-income housing from the purview of the Rent;

(g) extending the period of exemption from the operation of Rent Control Act, from 5 to 10 years, in the case of newly built dwellings;

(h) exempting dwellings less than 75 sq. mt. in area from the scope of the Rent Control Act;

(i) expeditious decisions by Rent Tribunals on litigations; and

(j) rent control to be progressively relaxed the housing stock improves; this is necessary because rent control has a tendency to perpetuate itself.

There is a strong lobby advocating abolition of Urban Land (Ceiling and Regulation) Act and the Rent Control Act. Though there is need for reform, they cannot be abolished or annulled. They are *sensitive issues* and have serious political implications, as nearly three-fourths of the urban household live in rented premises. Nor can be assumed that merely abrogating these two statutory instruments will automatically solve all our problems in the shelter and settlement sector. Abolition of Urban Land (Ceiling and Regulation) Act and Rent Control Act is not the panacea for all the ills of urban areas.

5.3.4 Land use controls

The primary determinant of the land use structure of any city ought to be public interest, in terms of health, safety. efficiency, economy and convenience. Therefore, public authorities are invariably required to introduce effective and comprehensive land use planning controls. However, a large section of land-owners is vehemently opposed to any form of limitations on its rights to use the land in any manner it wishes to do so. This contradiction is reflected in the statutory manipulations over land use controls, which are often weakened from the original development proposals by granting exceptions and variances, favouring the interests of land-owners.

Land use policies and practices have a direct bearing on national, regional and local economics, productivity, health and efficiency. It is, therefore, necessary to formulate scientific, long-term land use objectives, before designing a land use control system. The objectives of land use planning in Indian Cities should be in essence, strengthening urban economy, improving physical environment, conserving ecological equilibrium and fostering social values. In more specific terms, the objectives of land use planning and land use controls in our towns and cities should be:

(a) establishing a harmonious relationship between areas devoted to residential, commercial, industrial, recreational, institutional and other uses;

(b) ensuring a planned and orderly development of urban areas for the present and the foreseable future;

(c) satisfying the diverse needs of the urban community without conflicts and competitions;

(d) establishing strong urban and regional economies;

(e) fostering social cohesion and a sense of belonging to the community; and

(f) optimising the use of land, preventing its misuse and regulating its reuse or change of use.

In order to achieve the objectives cited above, it is necessary to resort to development control. The terminology 'development control' is not liked by land owners and property developers; it is advisable to name it development regulation. Development Regulations should aim at determining the use, height, coverage, bulk, character and appearance of buildings and other structures on land in various locations in the urban area. It should seek to ensure that any parcel of land or building shall not interfere with safety, convenience, privacy and efficiency of the adjacent sites or buildings, and also to be in harmony with the comprehensive development plan or the approved town planning schemes, as the case may be. If development regulations are not enforced, land owners and property developers will build anywhere and anyhow, leading to chaotic and disorderly growth of the city.

The local authorities of the cities must, therefore, be vested with adequate statutory powers to ensure that owners of landed property comply with development regulations which comprise three elements:

(a) land use zoning regulations,

(b) land sub-division regulations, and

(c) building bye-laws.

These three legal instruments of development regulation should form an integral component of the comprehensive Development plan or the structure plan of the city, and not a mere appendage or an ad hoc stipulation. Development control itself has no significance, if it does not form a part and parcel of the development plan. It is not short-cut or substitute to the development plan; nor it should precede the development plan.

5.3.5 **Zoning**

Zoning should form the most essential legal instrument of development control, as it enables the local authority to physically delineate an urban settlement into 'zones' or 'districts' for the purpose of regulating the use of land and buildings, their height, bulk, plot coverage, intensity of development, appearance and other characteristics. Zoning should give a distinct character, function and intensity of use to each zone.

Zoning in Indian cities is not comprehensive. To be complete, zoning should include in its scope the following elements

(a) broad land uses permitted in each zone;
(b) the maximum percentage of plot coverage;
(c) the maximum permissible height;
(d) the minimum setbacks in the front, the rear and the sides;
(e) the minimum size of a courtyard; and
(f) the maximum permissible density or intensity of development, expressed in terms of
    (i) number of persons per hectare; or
    (ii) number of dwelling units per hectare; or
    (iii) number of habitable rooms per unit area;
    (iv) number of persons per habitable room.

The height, bulk, plot coverage and setbacks are interrelated by Floor-Area-Ratio (FAR) in a new development or Floor-Space-Index (FSI) in a built-up area. The FAR/FSI is the ratio of the total area of all floors (excluding stair-cases, garages and balconies, etc) to the plot area.

Conceptually, zoning has the effect of expropriating a part of the property rights of owners, To that extent, the value of zoned land is depressed, as a wide range of possible uses is restricted. Indian cities characteristically have mixed land uses and, therefore, attempts to segregate various types of uses are often difficult.

Not all types of zoning regulations have been applied in Indian cities. The most common ones are: land use zoning, height zoning, density zoning, unrestricted/free zoning and deferred zoning. But there are several other types of zoning which are relevant in Indian cities and should be considered. For instance.

(a) aesthetic zoning.
(b) historic area zoning.
(c) peripheral zoning.
(d) transition zoning.
(e) cultural area zoning.
(f) mixed use development zoning.
(g) rural zoning.
(h) transit impact zoning.
(i) cluster development zoning.
(j) planned unit development zoning.
(k) conditional/contract zoning.
(l) interim zoning.
(m) phased zoning, and
(n) performance standards zoning.

Some of these zoning systems should be tried in Indian cities. Zoning has in effect become too rigid to deal with the dynamism of urban centres. Mixed use development and performance standards zoning should be accepted, Performance Standards zoning, which substitutes quantitative measurement for qualitative judgment is being practised in industrialised countries. It should be introduced in Indian cities, as it brings objectivity and rationality in the interpretation and application of zoning.

The manner in which zoning is practiced is being very much criticised, as it has become increasingly rigid and unresponsive to rapidly changing conditions of our cities. Zoning is not a substitute for land use planning; nor should zoning precede land use planning, zoning should not deal with materials and methods of construction; nor should zoning include in its scope. regulations relating to design and layout of networks such as roads, water mains and sewer lines. Zoning has some times been misused by applying it with retrospective effect. It should be clearly understood that zoning is a prospective measure and not a (retroactive) instrument.

Another malpractice in zoning is that too many exceptions and variances have been granted, defeating the basic objectives of zoning. Exceptions and variances are to be granted only in exceptional cases, to specific zoning lots, to afford relief to owners, in deserving case, and not to an entire zone, on the basis of performance standards. Zoning should not indirectly result in the segregation of the urban community based on determinants such as income, religion, caste, creed, occupation. and official status. It is often said that zoning goes against the poor, and that the rich and the influential get away with the violations of zoning. Objectivity should be the keynote of zoning, in interpretation as well as application.

Zoning should not be applied in a piecemeal manner to only few lots or buildings. Lack of comprehensiveness may defeat the purposes of zoning. It is also necessary to avoid spot zoning and over zoning. Zoning tends to freeze land and is therefore, likely to have harmful effect, in the context of fast-changing cities in India. Ambiguity in the language and lack of public awareness are two other major problems in the application of zoning, giving cause for corruption, nepotism and neophobia (fear of the unknown). Zoning regulations should be written in simple terms, which are explicit and can easily be understood, and not in complicated technical legal jargon and in implicit terms. Zoning regulations should be given full publicity and copies of zoning ordinances should be available at a nominal price. Zoning, if applied rationally and scientifically, can bring about a symbiosis between the economic dynamism of the Indian city with its physical determinism.

Over-zoning of relatively high-income or remunerative uses, excessive areas or frontages zoned for more intensive types of uses (such as group-housing, excessive height allowances and plot coverages and inadequate setbacks), are some of the shortcomings noticed in the operation of Zoning. Due to absence of Transition Zoning, there is often a pronounced or extreme difference in zoing between adjacent districts. For instance, a business district just opposite a low-density residential district or in juxta-position. The FAR, density, plot coverage and setbacks on two sides of the same road are often widely divergent. This has caused much resentment.

One of the significant omissions in the regulatory instruments in many Indian cities is peripheral zoning. This has resulted in numerous unauthorised constructions, illegal squatter settlements, non-conforming uses, unplanned sprawl and proliferation of slums in the fringe areas of the city. Similarly, Rural zoning, cultural area zoning and Aesthetic zoning, etc. are conspicuous by absence. On the other hand, some types of zoning are vague, and uncertain: for instance, deferred zoning and free-zoning. Another lacuna lies in not emphasising adequately the zoning for parking of trucks, cars, two wheelers and other vehicles in commercial zones.

5.3.6 Land Sub-division Regulations

Regulations conrtolling sub-division of land should essentially aim at achieving conformity with the urban development plan or approved town planning schemes; preventing sporadic and premature development of land, which may lead to sub-urban sprawl; preventing misuse of land ensuring an efficient layout of networks of roads, streets and parking spaces for the efficient movement of people and goods; and provision of adequate public utilities, municipal services and community facilities.

Sub-division Regulations of many urban development authorities in India are not comprehensive. They should include in their scope and contents, the following elements among others: minimum plot area, minimum frontage and depth, desirable sizes and depths of plots in case of various types of housing schemes and, commercial developments, minimum setbacks of buildings from the central lines of access roads, the minimum and desirable extents of reservations for roads and streets, parking lots, parks and organised open spaces, including the widths of carriage-ways, rights of way, radii of horizontal and vertical curves, gradients, cambers superelevations, design of intersections, road geometry, roadside arboriculture, street-lighting and road-appurtenances, street-naming and house/plot numbering. The land sub-division regulations in operations in many cities do not include provisions for plots with double frontages, reserve strips and side lines etc.

Experience has shown that it is necessary to adhere to the following general principles, which should govern the sub-division techniques:

(a) To prevent non-conforming uses of land, no sub-division layout should be allowed unless it is in conformity with the urban development plan or an approved town planning scheme.

(b) No building or structure should be permitted to be erected on a parcel of land which does not conform to sub-division regulations.

(c) With a view to preventing excessive sub-division and premature urbanisation, no parcel of land should be sub-divided unless it may be expected to be built upon within a reasonable period of time.

(d) To avoid sporadic growth and sprawl of the town, no parcel of land should be allowed to be sub-divided unless it has a proper access to it or it is possible to provide an access.

(e) Every sub-division of land should make provision for dedication to the public use of adequate extent of land for parks, play-grounds, organised open spaces, places of public assembly, school, health centres and other community facilities, in addition to roads, streets and parking spaces.

5.3.7 Building Byelaws

Building codes are integral parts of urban development and redevelopment. In the Indian context, there is no link and consistency between Zoning ordinances, sub-division regulations and building codes. It would appear that these three elements of development control have been drafted by three different professional groups, namely town planners, architects and civil engineers, without much cooperation and coordination between them. Very often, they are overlapping and conflicting between them.

Reviewing the building codes presently in force in Indian cities and suggesting improvements is beyond the scope of this chapter. However, it is necessary to highlight the fact that the building codes which are enforced at present are too high; and are suitable for housing meant for high-income and middle income groups; they are not suitable for housing for low-income households and economically weaker sections of the Indian society.

The arts and techniques of architecture, town planning and construction have been rapidly changing in Indian cities. Therefore, the approach to land use zoning and land sub-division regulations should shift from separating different land uses into water-tight compartments, to creation of conditions which would permit their coexistence. It is necessary to introduce

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innovations which will liberate development controls from rigidity and subjectivity. For instance, FAR, reduced plot coverage, and imaginative treatment of setback lines and architectural design will go a long way in freeing the design of buildings and other structures from rigidity and making it possible to bring out the innate structural stimulation on architectural quality. It should be our aim to overcome progressively the operational inadequacies in regulating non-conforming land uses and non-complying buildings, and, eliminating them in stages.

Zoning and sub-division regulations have so far been predicated in India on the assumption that certain land uses should be separated as they are incompatible. The success and failure of development control have often been judged and measured in terms of the degree to which zoning ordinances have been successful in keeping multiple-family residential uses, commercial uses and industrial uses in water-tight compartments. These concepts and methods of application have become obsolete and redundant. They must be substituted by more rational and objective methods such as Performance Standards Zoning.

5.3.8 **Freezing Land Prices and Pre-empting**

Local authorities in India lack financial resources to acquire land within a reasonable time after a particular plot has been identified and the intent to acquire is notified. Public knowledge of the intent to purchase can produce speculation in land and increase land prices in advance of the acquisition. Some countries (Malaysia, Turkey) have, therefore, resorted to freezing the land values.

Land value freezing can only be justified if prices are seen to be unduly high. Otherwise, it will be tantamount to restricting productivity, under utilisation, and under-development; the allocation will be inefficient. Moreover, it will lead to clandestine transactions; the official prices remain frozen, while the actual transaction prices will follow the land market. The Local and state Governments will lose taxes based on real property and the cause of equity will not be served. On the other hand, if the land price is frozen for a specified period and land is purchased by the Government agencies for redistribution to the relatively poor or for housing for the economically weaker sections: then the income distribution pattern will be improved, and on that basis land price pegging can be justified.

The value freezing system, is only a varient of a pre-emption system which is frequently exercised in Europe and Japan. Under pre-emption, the local authorities have the right to purchase designated parcels of land, usually at the urban fringe, for a fixed price, at any time the owner decides to sell, and before others buy. The authorities can also prevent development on such parcels of land, should they not elect to purchase. Pre-emption is thus a potential means of acquiring urban land and controlling its use, without tieing up large amounts of public capital for indefinite periods. But pre-emption has rarely been resorted to on account of political and management difficulties in implementation. As both price freezing and pre-emption affect only those owners who hold land which the local authority deems necessary for public use and not other land owners, they may be viewed as discriminatory and unfair taking of an individuals assets and rights to land. They may also lead to abuse of powers and corruption.

5.4 FINANCIAL AND TAXATION MEASURES

Most of the land and land use problems in India have either been attributed to irrational financial and taxation policies, or as problems that could be remedied by scientific fiscal and taxation measures. For instance, the under-use or less-intensive use of urban land hoarded for speculation has been attributed to under taxation of capital gains, changes in land uses, vacant parcels of land and development charges.

In India, we have underestimated the role of urban land in national, state and local wealths, especially the impact of high land prices on urban growth patterns. The process of achieving an optimum use of urban land can be realised by a number of financial and taxation measures, including among others the following:

(a) Periodic enhancement of real property tax;
(b) levying development charges;
(c) Collecting Capital gains tax;
(d) tax on change of land use;
(e) tax on vacant holdings;
(f) penal taxation against non-conforming uses and non-complying buildings.

It is necessary to analyse the effects of various types of land taxes on the land market and on urban development.

5.4.1 **Property Tax**

The property tax on lands and buildings has primarily a fiscal objective, namely providing the financial means to municipal authorities to cover the cost of urbanisation. Very often, it is main source of income to local government. At the same time, well managed real property tax goes a long way in regulating the land market. It also has social and physical impacts on land planning and land development.

In many Indian cities, property taxes have become static. They must be periodically reviewed and revised to augment the resources of the local governments. If the properties are revalued frequently, the undesirable speculations in lands and buildings could be checked to some extent. However, in practice, most municipal authorities in India are finding it difficult to reassess property values as frequently as desirable. Reassessment is vehemently opposed by property owners. Moreover, this is further complicated in India as the assessment is based on rental value and not the potential value. The Rent Control Act, which freezes the rents does not permit frequent revision of assessment. In India, techniques of real property valuation are not well developed. The assessment, is therefore, highly subjective; malparactices are common; collection systems are poor; and records are shabby.

In order to overcome these difficulties, some countries, notably Australia, Denmark and the USA, have introduced differential tax rates for lands and buildings. Sometimes, the landed property is taxed separately in the system of Site Value Taxation, with a view to delinking rent control on buildings from assessment on land, and also in order to produce higher yields by introduction of more remunerative land uses.

5.4.2 Development Charge

As stated earlier, the compensation-betterment issue is complicated in India. While land owners seek high compensation for the land acquired from them they are reluctant to pay betterment levy even on a modest scale. Therefore, as an alternative to the betterment levy, a number of local authorities have introduced the concept of development charge. It is to be levied only when a land use is instituted on converted land or the existing use is changed, or when the Development Authority has incurred an outlay when some urban improvement is carried out by implementing a development scheme. This is easier to collect, since it is recoverable only at the time of issuing planning permission. The development charge is levied on a graded scale, depending upon the proposed land use. Remunerative uses of land, such as commercial and industrial uses attract higher charges. The limited experience of this in India is quite favourable, though many land owners have been complaining about the misuse of this system by local authorities. The main problem seems to arise from the fact that local authorities, being starved for funds, have been unscrupulously collecting development charges even in those cases where the local authority has not undertaken any improvements and although there is no change in land use. The concept of development charge is not correctly understood by the local authorities as well as the public. It should be properly explained to avoid its misuse.

5.4.3 Capital Gains Tax

It is common knowledge that in India owners of land reap huge profits, without much efforts, from steep rise in land prices. But a large portion of the speculative gain is suppressed; it escapes the provisions of taxation relating both to capital gains and stamp duties on transactions of immovable property. It is an accepted principle in land economics that owners of land should not reap an undue benefit from price rise. It ought to be the objective of any progressive fiscal policy to mop-up a substantial part of the unearned gain on the social surplus by levying a capital gains tax and charging stamp duties on registration of land transactions. The system of levy-tax on capital gains from land should, however, take into account of an adequate return and then tax the rest. If this is done, the attractiveness of land as a profit making asset will be reduced and the speculative element in the price will be removed to a considerable extent.

In practice, it is effective to the extent of legal transactions which are registered. In India, registration of sale deeds at very low prices is rampant. The Government of India has recently introduced a number of taxation measures, which include concessions if the capital gains are reinvested in certain sectors of investment. The income from long-term capital gains is also exempted from income-tax, subject to certain limits.

The cepital gains tax as operated in India has its limitations and failed to serve as an effective instrument for mopping up unearned land price increases. It does not seem to have had much impact on speculative price rise, except perhaps a negative one. Bureaucratic delays and imperfections in the assessment system have slowed down market clearance by discouraging supply of land. It has also given incentive to understate transaction prices, which then affect many other taxes which are based on property value. Though Government of India has introduced in major cities a system which enables it to exercise eminent domain or power to compulsory purchase of land at the registered value, it has had no significant impact on the malpractice of under-declaring land values. The entire system needs to be rationalised.

5.4.4 Tax on Gains Due to Change in Land Use

Experience has shown that substantial increases in land values occur when planning decisions change the use of land from less remunerative to more remunerative ones or increase the intensity of land use, in terms of density, plot coverage and F.A.R. This is particularly true of the inner city or the central area. Planning decisions which permit conversion of residential land to commercial use, result in a reduced supply of land, as owners refuse to develop their properties for residential use. The high property values prevent any further residential development. It reduces the net housing stock.

It is worthwhile learning lessons from the experience of European Countries. The Government of U.K. collects a tax of 80 per cent on the additional value resulting from the change in land use. It is collected only when the ownership of land changes. A recent planning legislation gives local authorities in Britain the power to acquire land at the existing use value for development needs which will arise ten years hence, while the private owners will have to pay the tax due to change in land use. In principle, all land for development must pass through public hands before being used for construction. In U.K. there is a clear distinction between the rights of land ownership and rights of land use, in order to eliminate the private expropriation of the gains from changes in land use.

In Denmark, a tax of 60 per cent on the additional value created through a change in land use is levied at the time of taking a decision to make a change in land use is made.

A levy on land use change should be considered by local authorities in India, as it facilitates regulated and planned land uses and also forms a good source of revenue.

5.4.5 **Tax on Vacant Holdings**

Some countries (Spain, Syria, Chile) have introduced a high rate of inflation on vacant land in urban areas, within urbanised limits. In Chile, the tax on vacant land starts at 3 per cent and increases in yearly rests to 6 per cent.

Tax on vacant land has five objectives:

(a) to encourage construction;

(b) to provide a perennial source of revenue to the local authorities;

(c) to check speculation in land;

(d) to mop-up the unearned gains from appreciation of land value; and

(e) to increase the supply of land to the market.

Tax on vacant holdings is justified on the ground that the value of land appreciates, while value of virtually all other goods depreciates. However, the structures built on land are depreciable. In some cases, the depreciation of a structure may increase the value of the land, as it leads to an expected change in land use, when a new structure is put up as a replacement. The tax is also justified on the ground that urban land should be regarded not only as a natural resource but also as an economic commodity.

Some land economists have opposed tax on vacant holdings. They are of the view that as long as there is a rational capital gains tax, an additional tax on vacant holdings is unnecessary, except to encourage selective development in a particular area or of a parrticular type. A new approach that may be taken to the taxation of land profits is to tax vacant land, only in urbanised areas with approved development schemes, and not on land on which construction would not be permitted in any case. This would provide a better measure of control on profits derived from the speculative holding of land. In any case, there should be no special exemption from the property taxes which are in force. On the other hand, the property tax should be made penal in case of vacant land.

5.5 INNOVATIVE TECHNIQUES IN LAND DELIVERY

It must be evident from the preceding discussion that in the light of several financial, legal and management constraints in getting access to land, especially the one required for housing the poor, it is necessary to explore innovative techniques which make it possible to purchase land expeditiously at non-inflated prices. We can learn from the experience of several other countries which have taken to innovative techniques in land delivery such as—

(a) Land Banking

(b) Land Pooling

(c) Excess Condemnation

(d) Self-financing by cross-subsidy.

5.5.1 **Land Banking**

It is basically an approach to acquisition of substantial extent of land by Government, well in advance of the need and releasing land in stages, as and when required for development. It has been practised with great success in Canada, the Netherlands, Sweden and other countries. Delhi Development Authority attempted it in 1960's.

Land Banks may be instituted in major urban centres by enacting 'Enabling Legislation', to facilitate the following operations:

(a) assessing the extents of land required for public and semi-public uses;

(b) making bulk purchases of land in advance, in harmony with urban development schemes;

(c) holding the acquired and assembled land in trust for the community;

(d) evaluating and assessing the extents of land needed by various authorities from time to time;

(e) releasing land to the authorities in stages;

(f) collecting the cost of land and its development, together with the operational costs;

(g) exercising powers of acquisition of land through negotiation, expropriation or the right of pre-emption and collection of betterment levy; and

(h) making provision for setting up a revolving fund and putting the seed money.

The Land Bank System has many advantages to offer—

(a) Land can be acquired for such public uses as schools, hospitals, roads, parks and housing schemes.

(b) Land can be acquired in advance, primarily for creating a planned land use and density pattern.

(c) The land price appreciation can be captured by the Bank, instead of private owners.

(d) Public facilities may be provided in an efficient response to urban growth.

(e) Speculation in land may be checked.

(f) By releasing land in the fringe for development at an appropriate rate, public authorities can balance the supply with the demand, to stabilise land prices.

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Though Land Banking is an effective system, there are a number of practical difficulties in putting the system into operation—

(a) The Land Bank has to mobilise large sums of money.

(b) The cost of borrowing may be higher than the marginal rate of return on investment.

(c) The cost of administering the system will be high.

(d) Freezing large tracts of land without development may contribute to housing shortages, illegal squatter settlements on frozen land and spiralling land values.

(e) There is always a chance of buying land which may later turnout to be unsuitable for the proposed public use.

(f) Favouritism and corruption.

A Land Banking system in operation may be seen as a benign monopoly in the public interest. Though there are some disadvantages, it has several advantages as well, which make it worthwhile trying in metropolitan cities.

5.5.2 Land Pooling system

As stated earlier, public authorities in India are not able to pay exhorbitant market value and the solatium, when they acquire land for public purpose, especially land required for providing shelter to the urban poor, as their financial resources are extremely limited. Therefore, in land acquisition, emphasis will have to shift from mere payment of monetary compensation. One of the solutions to this problem which is extensively practised in Australia, South Korea, Taiwan, Malaysia and Thailand is the Land Pooling/Land Readjustment system.

In brief, Land Pooling is a technique whereby a public authority assembles numerous small parcels of raw land and consolidates them, without paying cash compensation to owners; the public authority services the land and sub-divides it according to a planning or a housing scheme; reconveys a part of the serviced building sites to the original owners in proportion to the value of their land contributions; and retains the remaining land or sells the remaining land to recover the development cost and all other charges. The reconveyed sites have to be built upon in accordance with the planning scheme. The land pooling system is a temporary form of ownership, to achieve a unified control over large areas and a means of financing public service installations.

A modified system . of land poling lies in reconveying only one to three buildings sites to each of the land owners who contribute to the pool and to auction of all other sites, with the land sale proceeds net of government planning and infrastructure costs divided among the land owners, in proportion to their initial land contribution to the pool. This technique would serve a dual purpose of ensuring that the initial land owners would have sufficient funds to start building on their own reconveyed sites, and also ensuring that the owners would not have more building sites than what they themselves could use.

This system has several advantages from the point of view of the land owners. They stand to gain enormously by way of appreciated land values and also permission to develop the returned sites in accordance with the approved town planning/housing scheme, without going through the cumbersome legal and fiscal procedures. The compensation in kind often works out to be much more than the monetary compensation. From the point of view of the public authrity also, it is advantageous because the projects can be implemented expeditiously. It also enables the authority to make profit by selling the retained land and plough-back the gain for meeting the cost of infrastructure and also for providing cross subsidy to low-income housing schemes. Experience has shown that in the case of the land pooling system, the land owners willingly surrender their parcels of land and participate in the pool, the relevance of the land readjustment system should be recognised in India. It is reported that a simplified version of this was adopted by the Government of Uttar Pradesh during 1960's. Bangalore Development Authority has employed this method in some cases.

5.5.3 Excess Condemnation/Excess Acquisition

Another technique by which a public authority can derive profit from an urban development project and plough-back it into funding infrastructure projects, as a cross-subsidy, lies in resorting to Excess Condemnation or Excess Land Acquisition around the project site. This operation is based on diagnostic surveys and studies of the project area and its environs. This can be a significant means of regulating development that is attracted by availability of infrstructure in a project area. The public authority may hold the excess land for future use, or sell it or lease it at profit and use the additional funds to provide cross-subsidy to housing for low-income groups, in accordance with equity and efficiency objectives.

To put this system into operation, it is necessary to amend the existing legal provisions for land acquisition. It also presupposes a good deal of feasibility studies and preplanning. An example of Excess Condemnation can be found in Toranto, Canada. In the course of construction of the subway system, the Subway Authority acquired more land at the station entrances than was required for the stations themselves. The excess land was leased for 55 years to private developers, who would submit favourable proposals for multi-storeyed mixed developments; compatible with the subway facility. This is an example of maximising the use and benefits from a major public investment, as in the case of a bus depot, truck terminus, railway station, subway system, or a major highway.

5.5.4 Self-financing Techniques

A local authority should be able to become self-reliant, over a period of time, without depending much on loans, grants and subsidies from State and Central Governments. A number of self-financing techniques are now available:

(a) Special benefit assessments, in the case of new bridges, recreational centres, amusement parks and shopping arcades.

(b) Mixed land use projects, instead of monolythic schemes such as purely residential, or purely commercial or industrial layouts.

(c) Substituting more remunerative land uses in the place of less remunerative ones, fully or partly.

(d) Intensifying the use of land by increasing the density, F.A.R., plot coverage and infilling; and

(e) Cross-subsidy technique, in which the profit derived from more remunerative uses of land such as commercial use, entertainment and amusement use are utilised in the form of cross-subsidy for funding less remunerative land use schemes, such as housing for low-income groups and economically weaker sections of the society.

5.6 CONCLUSION

5.6.1 Formulation of a set of land policies is one of the most difficult and complex areas in the urban and regional development sector, as it has to strike a balance between the larger interests of the community represented by the State and Local Governments on the one hand and the limited interests of the individual land owners on the other. It is not easy to reconcile between these two goals, which are often in conflict with each other.

5.6.2 In a mixed economy like that of India, where land is an extremely limited resource, there is a clear case for effective public intervention, fiscal, legal and spatial, and for treating the land policy as an integral part of the objectives in settlement and shelter policies.

5.6.3 Although comprehensive urban land policy was mooted as far back as in 1961, and though several committees have deliberated on this crucial subject, nevertheless, a clear-cut long-term policy is yet to crystallise. We have far too long depended on ad-hoc, piecemeal expedients and that too only legal instruments, pursued in isolation, without due consideration of fiscal measures as well. Consequently, large scale acquisition of land has met with limited success. Rent Control and Urban Land Ceiling and Regulation measures need reforms. Land use controls need to be more flexible and responsive to the dynamics of urban growth. Property tax is not adequate; it has to be reassessed and enhanced periodically. Stamp-duty on transfer of properties has had very limited impact on land prices. Capital gains tax has not brought down land prices; and also it has led to malpractices. The betterment levy has not worked out satisfactorily. The development charges and other measures referred to under innovative techniques in the preceding chapter may achieve the fiscal measures in the urban land market.

5.6.4 It is high time that Government of India, in cooperation with the States, evolves a rational urban land policy, which will achieve a set of avowed goals and objectives. The blue-print on urban land policy should necessarily be a long-term one, covering all aspects.

CHAPTER 6

STATUTORY AND ADMINISTRATIVE FRAMEWORK FOR PHYSICAL PLANNING

6.1 INTRODUCTION

6.1.1 The importance of urbanisation, urban development and regional planning has been recognised in the national development planning efforts only recently. An urgent need for effective legal tools has been felt in order to control and regulate the development of the urban and rural areas of the country in a planned manner.

6.1.2 Provision of comprehensive Urban and Regional Planning legislation has assumed a great urgency in view of the massive urbanisation, industrialisation and large scale investments in public sector apart from development programmes taken up in the successive Five Year Plans under Central and State Sectors. The legal tools presently available for undertaking urban development programmes in the States and Union Territories do not provide any comprehensive legal framework enabling implementation of long term development plans. In order to control and regulate the development of urban and rural areas an effective comprehensive legal tool is a sine quo non. This chapter tries to evaluate the existing planning legislations and administrative set up as exists in the States, Union Territories and suggests the statutory and administrative framework for carrying out the physical planning in the country in future.

6.2 EVALUATION OF THE EXISTING LEGISLATION OF PHYSICAL PLANNING AT VARIOUS LEVELS

6.2.1 Town Planning was considered as a part of the municipal administration since the beginning of the 20th century. In order to formulate and implement the town improvement schemes, improvement trusts were set up for Bombay in 1898, Mysore in 1903, Calcutta in 1911, Uttar Pradesh in 1919, Punjab in 1937. The town improvement scheme under the Town Planning Acts were also introduced in some of the States like Bombay in the year 1915, followed by Madras (1920) and Punjab (1922). The town planning and town improvement activities were carried under such legislative framework which did not provide comprehensive planning and was only confined to the schemes related to the improvement of public health and sanitation aspects. It was not possible under that piece of legislation to control and check haphazard urban growth.

6.2.2 After World War II, the Bhore Committee recommended the enactment of an uniform planning law to deal with the development of urban and rural areas. Based on this recommendation and also the draft drawn up by the Institute of Town Planners, India, the erstwhile Central Regional and Urban Planning Organisation prepared the first Model Town and Country Planning law in 1960. The model law was considered in detail by the first Conference of the State Ministers for Town and Country Planning held in 1961 which set up a Committee of Ministers to make suitable recommendations on the Model Law. The second conference of the State Town and Country Planning Ministers, considered the report of the Committee on the revised model law prepared by the Committee and then recommended to the State Governments for their consideration and adoption.

6.2.3 The Government of West Bengal set up a legislation Commission to study the model law and to advise the Government. The views and comments of the Commission and other State Governments were examined by the Fourth Conference of the State Ministers for Town and Country Planning which felt desirable that the recommendations of the West Bengal legislation Commission model should be further examined by a Committee which might suggest any changes or improvements in the Model Act. The model law was thus revised by the Committee and recommended for adoption by the State Governments. The various State Governments have revised their law in the light of the revised model law and some States are in the process of making modifying their existing laws according to the model law.

6.2.4 In order to ensure efficient monitoring and coordination in planning and plan implementation the legislation should combine the planning and plan implementation aspects together so that a single agency/authority could undertake both planning and development functions. The TCPO reviewed the Model law in consultation with concerned Ministries and suggested a combined planning and development law to be enforced by a single agency. Most of the planning laws as existing in the States and Union Territories today lack the power of implementation which has been the major shortcoming for the failure of the planned development.

6.2.5 The evaluation of the existing planning legislation (Annexure I) reveals that there is no uniformity in planning legislations presently in operation in the States. Most of the State Town Planning Acts do not have implementation power of the development schemes except in Maharashtra, where the Maharashtra Regional and Town Planning Act provides statutory power for implementation of the town planning Schemes in addition to planning of urban areas. The provision of planning and development at the Metropolitan region level exists in the State Town Planning Acts of Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu. Some of the States do not as yet have Town Planning Act such as Rajasthan and Haryana where Urban Development Act, 1959 in Rajasthan and the Punjab Scheduled Roads and Controlled Areas Restriction of Unregulated Development Act, 1963 as adopted by Haryana with Haryana Urban Development Authority Act, 1971 respectively provide for planning and development functions in the States. Interestingly, in Kerala there is no State level Town Planning Act and planning and development activities are carried out under three different Acts operating in a separate planning areas. No Town Planning law exist in the States of Sikkim, Arunachal Pradesh, Mizoram and in the Union Territory of Lakshadweep. In as many as 19 of 25 States and of the six in three UTs, there is no comprehensive Planning legislation to cover the Regional Planning aspects. Presently, comprehensive planning legislation exists in Gujarat, Madhya Pradesh, Maharashtra, Manipur, Tamil Nadu, Goa and Union Territories of Delhi and Pondicherry. Some of the States are in various stages of enactment of the comprehensive planning legislation. In fact, today, there is no planning legislation at all in three States (Sikkim, Arunachal Pradesh and Mizoram) and the Union Territory of Lakshadweep.

6.3 EXISTING ADMINISTRATIVE SET UP FOR PLANNING AND DEVELOPMENT

6.3.1 City Planning administration started with the improvement trusts which were staffed initially by general administrators and engineers. The Bhore Committee recommended for establishment of a Town Planning Advisor's office at the National level. The increasing importance on the overall economic planning has led to the recognition and the need for properly staffed Town and Country Planning departments at the State and Centre levels to undertake physical planning within the framework of economic plans.

Presently the Town and Country Planning administration is organised at three levels:

(1) National
(2) State
(3) Local

6.3.2 At the national level, the Town and Country Planning Organisation is an apex technical advisory and consultative organisation in all matters concerning urban and regional planning and development. The Organisation made efforts for systematic development of towns and cities and rural areas and regions in the country which mainly covered important aspects of spatial planning, such as industrial location, economic structure of cities, urbanisation, urban land policy, development of backward areas etc.

6.3.3 The Town Planning Departments now exist in all the States and in several Union Territories as well. The State Town Planning Departments function as an organisation for physical planning at the State levels. They advise the State Governments in all matters pertaining to urban and regional planning, including legislation, planning policy and programmes, location of industries and other important projects and also give technical assistance and advise to local authorities in the preparation of Town Planning Schemes involving housing and civic amenities, rural planning and housing.

6.3.4 Planning administration is yet to emerge as a distinct part of local administration. In the case of metropolitan cities like Bombay, Calcutta and Delhi, town planning has been initiated at the metropolitan level, and development authorities have been established with the responsibilities for planning and developing these areas. These authorities have also responsibility for preparing comprehensive plan for metropolitan areas and the regions in their immediate vicinity.

6.4 AN APPRAISAL OF EXISTING URBAN PLANNING ACTS

The purpose of this appraisal is to examine the key provisions of the Acts, (which are similar in nature) and underline the weaknesses and inadequacies in the planning law. In examining the Acts reference is made not so much to plans themselves, but to principles and methods by which plans are prepared, sanctioned and implemented.

At the outset it is necessary to establish certain characteristics of the urban planning process, and then against these characteristics, make an appraisal of the urban planning act. Urban Planning (Physical Planning) is much more than the mere preparation of master plan/development plan. Once begun, it is a continuum of preparation of the plan, sanctioning of the plan by the government, and finally the implementation of the plan. To a large extent, the activities associated with the preparation of city development plan consists of research. The facts about the planning area which bear on its development are compiled. The present and future needs and resources of the area are evaluated, and development objectives drawn up. Town planning proposals are formulated along with the measures needed to carry them out.

The sanctioning of the city development plan, on the other hand, involves review and appraisal. The sanctioning authority has to judge with special care the policies posed by the plan, it calls into force. And finally, implementation of the plan, which requires both regulatory and development and redevelopment activities.

It is also important to note the characteristics of the city development plan. When a plan is prepared, it has really to be in the nature of a programme. This, indeed, is the vital and essential character of a city development plan. Besides, a viable plan is both spatial and functional. While the spatial aspect relates to the land use policy, the functional relates to the urban transportation and communication system, public housing, public utilities like water supply, drainage and power supply, etc.

The above characteristics of the town planning process depicts town planning as continuous, coordinate, and programmatic process of effecting the development of the urban areas. This is the functional concept of town planning.

The appraisal that follows is made to indicate the administrative requirements of various major activity components of the urban planning process.

6.4.1 **Plan-preparation**

In the urban planning process every major functional agency in a city whose activities affect significantly the development of the planning area, is in a way, a plan preparing agency. In our cities, there is a multiplicity of such functional agencies, such as housing board, water supply and sewerage boards, electricity boards, intra-city road transport, Public Works Department, Railways, Port Trusts and the like. For its own activities, each such agency assesses its resources and project its service, and urban improvement and development programme. Plan making by these functional agencies has advantages; it is done by persons expert in the techniques of the functional agency's programme, it is done in close awareness of the needs of the agency and it tends to be practical, because it is usually influenced by the problems of implementation.

However, such plan making by itself is inadequate for dealing with the complex problem of urban development of the city as a whole. Necessarily, each agency plans only for its own functions. Furthermore, single agencies lack power to influence the plans of other agencies and some agencies may not have the staff or resources to prepare long-range plans. Technical expertise, therefore, does not necessarily mean planning expertise. Consequently, functional agency's plan-making must be accompanied by plan-making at higher levels.

A central planning authority at the city level with wider perspective, more specialised physical planning skills, and larger resource must prepare and maintain a comprehensive development plan for the city, revising where necessary the functional agency's plans. A close and continuous coordination of work must exist between the central planning authority and the functional agencies. The need for such coordination is always present, but it is especially acute where the central authority and other agencies are not part of a single command.

While the act makes it clear that the urban authorities are to prepare Development Plan (Master Plan), it must also make provision for the coordination of plan preparation by the urban planning authority with those of other public functional agencies. The urban planning authorities must be given systematic means of knowing what the plans of other public agencies are and a method of adjusting their plans to its own or vice-versa. Coordination will come from the systematic inter-locking process, such as the review of capital investment budget for various urban development and improvement projects; it will not arise from mere representation in the planning authority by the heads of various functional agencies.

The present urban planning/development acts in the States do not adequately meet these requirements of effective administration of development plan preparation. On the contrary, the acts isolate the elements of the planning process; since they fail to provide necessary linkages between plan-preparation by the multiplicity of functional agencies in the cities. Under the Act only the planning authority has any part in the preparation of the development plan.

6.4.2 **Plan-sanctioning**

Since plans are programmes, the sanctioning of the city development plans(CDP) is a political decision. The development of the city is at stake as may also be important private rights. The approval of a plan-(CDP), therefore, is a grave responsibility. It is akin to the enactment of a law.

The value question of democratic participation in this function aside, there are several desiderate from an administrative point of view. In the first place, the sanctioning authority (State Government) should be equipped to evaluate the CDP it receives. This implies that it should have independent technical advice concerning plans.

Since the CDP will involve several functional agencies, conflicts of interest must be resolved on the official, as well as popular plane. Since the CDP is also a mandate to incur expenditure required to implement the CDP, adoption of the CDP will in effect encumber the budgets of all the functional agencies involved in implementation. For these aspects of the sanctioning of plans, as well, the States must devise administrative procedures. The Acts suggest no standards of administrative discretion in sanctioning of plans.

6.4.3 **Plan Implementation**

The essential characteristics of the town planning process imply that the implementation of plans must be related to the other stages of planning, especially to plan preparation. The central planning authority at city level which is required to coordinate plan preparation must also coordinate the implementation of plans. Only such an authority can have the perspective to oversee the entire implementation process and to provide direction and guidance, within the framework of the comprehensive development plan, and the other plans. The devices of cooperation essential to coordination at plan preparation stage are equally needed for implementation of plans.

The defects in our urban planning/development acts, in relationship to this issue arises from the sharp separation of plan preparation and plan implementation. Whereas, the urban development authority only, being a central authority for planning, can secure direct coordination of the two stages of the planning process, namely plan-preparation and plan-implementation.

The urban planning acts which are in operation in our country, contain serious deficiencies concerning plan administration. The complexity and dimension of the contemporary urban development problems are too formidable to be tackled within the framework of the existing urban planning laws and to make urban planning process more responsive to the changing needs of the rapidly growing cities in India, the urban development acts are in urgent need of being reviewed. The amended acts should be based on the realistic conception of planning.

6.5. ALTERNATIVE APPROACH TO PLANNING ADMINISTRATION

The Working Group would like to suggest an alternative approach to planning administration at city level based on the following principles:

6.5.1 Preparation of plans at the lower levels (functional agency level) and urban planning authority level must be linked by all of the devices necessary to ensure mutual knowledge of plans, and to guarantee that subordinate plans are rationalised within the overall city development plan;

6.5.2 Plan preparation and plan implementation must be interconnected so that the urban planning authority may be directed by the plan sanctioning authority (State Government), interpret plans and where necessary call for the redirection of activity in accordance with those implementations;

6.5.3 Plan implementation by different agencies should be coordinated horizontally, at the department level or local level where possible, but where necessary, coordination may be secured vertically through the urban planning authority;

6.5.4 The urban planning authorities should be limited in function to the administration of planning, and should not themselves be urban development agencies;

6.5.5 The sanctioning of the city development plan, since it is a mandate to carry out the terms of the plan, must be binding on all functional agencies;

6.5.6 The sanctioning authority should be so structured and equipped as to be able to evaluate the technical adequacy and political responsibility of the plan it brings into force;

6.5.7 The Act will have to provide for the establishment of functional boards for housing, transportation, water supply and drainage, urban renewal and environmental protection. The terms of reference must clearly lay-down that each functional board of the urban development agency should be charged with the task of preparing more detailed functional and area development plans for housing, transportation, water supply and drainage, urban renewal and environmental protection. The vital utilities of water, sewerage, electricity, and transportation must be supplied and housing provided in cities (urban areas) in accordance with a long-range plan. The functional plan be concerned with the totality of the problems pertaining to the field of each board's concern.

6.5.8 The responsibility for coordination of plans, programmes, and projects of the functional boards should be vested in the urban development authority. It should be the function of the planning authority to prepare short-term and long-term capital projects programmes and a corresponding budget for the city indicating phasing of the programmes and their financing. The vesting of capital budgeting function with the planning authority is the only dependable means of ensuring coordination among various agencies executing development projects in the city, and the attainment of targets and objectives of plans.

6.6 SUGGESTED ADMINISTRATIVE SET-UP.

6.6.1 **Central Level**

(i) *Planning Commission*

The existing organisations dealing with urban and regional development should be restructured to achieve in an effective manner, the integration of economic and spatial factors in planning process. The Planning Commission is responsible for the economic and financial aspects of development and for evaluation and coordination of development proposals of various ministries and agencies. In view of the regional approach to planning urban growth, the Centre and especially the States, must develop an urbanisation programme. A separate Urban and Regional Planning division may be set up in the Planning Commission to formulate appropriate guidelines for translating national development programmes into spatial framework at various levels. The Urban and Regional Planning Division should be equipped with under an eminent Town Planner, a multi-disciplinary team capable of planning, project formulation, and appraisal and monitoring.

(ii) *Ministry of Urban and Regional Development*

In order to advise on the spatial implications of national economic planning proposals and policies and to assist a realistic and balanced development of the country as a whole, the Ministry of Urban Development should be redesignated as Ministry of Urban and Regional Development. The Ministry should be responsible to formulate national physical development guidelines, coordinate, review the regional development plans (inter-state, state level) within the framework of the national physical planning guidelines and also formulate the appropriate model legislation.

The Town and Country Planning Organisation (TCPO) would have to be suitably strengthened as it should act as the main technical arm of the Ministry. TCPO should assist the Planning Commission and the Ministry in formulation of policies and evolving guidelines and planning methodologies for integrating economic and spatial (physical) planning. It should also be responsible for preparation of a national physical plan, formulation and appraisal of regional development projects, monitoring and evaluation of urban and regional development programmes.

6.6.2 **State Level**

The State Regional and Town Planning Board should be established by the States to coordinate, guide and assist the Governments in the planned development of regions, and urban settlements of the State. The Town and Country Planning Department should be strengthened so as to coordinate, giude, assist the regional and district level offices in the preparation of Regional Plans, Master Plans and Development Plans. The office will carry out exercises for delineation of regions, sub-regions and advise the Government in all matters relating to urban and regional planning and development in the State.

6.6.3 **Regional Level**

Regional Development Authority:

The Regional Development Authority at the Sub-State level, will be created by a statute and will be responsible for formulation, coordination and supervision of all planning and works relating to the development of the planning region. These planning regions can comprise metropolitan regions, hilly area, backward area, tribal area etc. which require special treatment for development. The Regional Development Authority should be headed by a Divisional Commissioner. Among various Departments related to development activities within the region, the Regional offices of the State Town and Country Planning Department should function as the technical arm of the Authority.

6.6.4 **District Level**

District Development/Planning Board

At the District level, District Development Board should be created under the Chairmanship of District Collector. The District Planning Offices of the Town and Country Planning Department should be responsible for preparation of District Development Plans and Master Plans. The district level spatial plan would relate physical development with economic development and achieve better intersectoral coordination. The District Planning Offices should be strengthened with qualified Town Planners to carry out the planning and development functions.

6.6.5 **City/Town Level**

At present there is a separate urban planning and development authority in each city which is only tenuously connected with the Municipal Government. These independent development authorities have not been effective in solving the continuously changing needs of the city. Therefore, this concept of a separate organisation that controls Municipal Government as regards, either the desired ingredients of a development plan, or of its implementation does not appear to be correct. Town Planning should emerge from the people themselves. If the responsibility is placed on the city Government, it is probable that the development plan that emerge will prove more acceptable and easier for implementation.

6.6.6 The Task Force, of the Planning Commission on Housing and Urban Development (1983) while making recommendations for planning at the city level, states that there is a consensus that municipal bodies should be strengthened for the planning needs of each city and town. Once the regional dimensions are spelt out by the State level planning body, the responsibility as well as authority for planning at the city/town level must be that of the local government.

6.6.7 Urban Planning (Town Planning) should therefore be made an administrative function, of the city government. It is important to note that urban planning is much more than mere preparation of master plan (development plan). For urban planning is not an event but a process; once begun it is a continuous process of preparing plans, sanctioning of plans and finally their implementation.

6.6.8 The formulation of a master directive plan, the adoption of the MDP by the government through a series of related policy decisions, the assignment of administrative responsibility for action, the mobilisation and allocation of resources, implementation according to phased and realistic development programmes, monitoring and evaluation of progress and periodic plan review; all these are indispensable steps in continuous and systematic sequence of urban planning and development process. In our rapidly changing technological environment, nothing can be extrapolated with certainity even in a medium-term time-frame. It is essential, then, that the urban planning process evolves with the rapidly changing social and economic structure of our country. It is, therefore, important to set up a permanent urban planning structure which will secure the continuity of planning process.

6.6.9 In fact how town planning in our cities can most effectively be carried out will depend not only on the professional town planners engaged in it, but also, and even more on the properly designed structure and working of the planning administration within the local urban government, and in the form and content of the town planning function.

6.6.10 At the city level, town planning is subject to man-made factors, involving the relationships between the intra-urban transportation pattern, and work and living places. It involves specifics of land use patterns and functional requirements of individuals, cities and towns. Therefore, at the urban settlement (city) level there is an urgent need to make urban management more efficient and responsive to urban demands.

6.6.11 Urban Planning (Town Planning) must be treated not as a detached activity, as it is today, but as an integral part of the whole business of the City government. Since local planning has to conform to State policies, so within the city government itself there are other departments whose needs and activities must be taken into account by the urban planning department and reconcile with its own policy and proposals. Further the implementation of the plan calls for the cooperation of other departments.

6.6.12 However, it is not that the town planning department has to confirm the policies of others. Such a situation might reduce the urban planning department's functions to mere recording on the plan the claims on land of a variety of public interests, and hence there will be a danger that where planning is not seriously pursued it is likely to degenerate into little more than this.

6.6.13 The function of town planning is to create a well balanced synthesis of what might otherwise be a mere collection of separate policies and claims, to combine them into one consistent policy in the physical conditions of that area into a plan that is practical, economical and aesthetically pleasing, and to organise the implementation of the development for which the plan has provided for.

6.6.14 For urban planning to be fully effective in this manner it is necessary that the administrative arrangements with the city government structure should be such as to permit this synthesising function to have full scope. This function should be exercised not only in the formulation of the plan but throughout the total process of its implementation.

6.6.15 According to our existing planning acts planning is a static concept—regarded as primarily the preparation of a plan, while the other aspects of the work are left to be pursued independently by other departments. If this continues the value of urban plans may be lost.

6.6.16 Therefore, if town planning is to be properly performed, the organisation of a local urban planning authority should be such as to vest in the Chief Town Planner the responsibility for handling the planning function.

6.6.17 It is quite possible for the Class I cities (one lakh and above population) to develop their own urban planning capability in terms of qualified staff. Since there are 216 Class I cities (1981) which are likely to increase to 300 by 1991 and 400 by the year 2001, a substantial portion of the urban population will be covered by these city governments. However, it may be somewhat difficult for local governments in the small and medium towns to afford their own urban planning staff. Therefore, the State Town Planning Organisations should set up special wings for providing consultancy services in urban planning to the small and medium towns.

6.7 IMPLEMENTATION STRATEGY

6.7.1 **Development Programmes**

A programming is a management system desired to assist in taking decisions about the use of resources through monitoring of result and feedback of this information to assist updating and revision of Plans. After the development plan has been prepared for any region or urban area, the planning and Development Authority, for the purpose of implementing the proposals contained in the development plan, should work out a long term programme plan embracing various sectors of land acquisition and development of residential, neighbourhood and housing, industrial and business centre, traffic and transportation, water supply, sewerage and drainage and social services etc.

The programme structure breaks down each major objective into sub-objectives and arranges under them groups of activities (programmes) that contribute to their attainment. The programme structure proceeds from broad objectives at the top through sub-objectives and programmes, to detailed activities at the bottom. Programmes may be complementary or alternative ways of meeting objectives. The programme structure should include proposed as well as current activities, and should extend to the activities of other organisations which could make contributions to the authority's objective.

Once the full range of programmes for meeting an objective has been arrayed, it is necessary to assess the effectiveness of each in meeting the objective. The programme that gives the best performance for fixed sum of money, or for the programme that gives a specified level of performance at a minimum cost should be accepted. In either case, it is necessary to calculate the full financial costs (capital and revenue), and often the land and manpower requirements of each alternative over as many years as possible and to estimate the expected benefits or outputs. The analysis may be a simple, logical examination of a problem (an Issue Paper) or something much more sophisticated like cost-benefit analysis. The results of analysis should be presented to decisions maker in the form of written submissions (programme memoranda). Programme analysis does not presume to dictate decisions; rather, it aims to provide decision-makers with information on the costs and consequences of alternative courses of action.

Any detailed preparation of a programme plan has to be a continuing exercise. Twenty to twenty-five years is too long a period for prescribing specific tasks and working out operational and budgetory details.

6.7.2 **Capital Investment/Budgeting**

The programme budgeting provides a formal, systematic method to improve decisions concerning the allocation of resources. The problems of allocation arise because of limited resource supplies in relation to the demand for them. This leads to a need for selection of the best suited decision. The Programming and budgeting should be a continuous inter-linking process to ensure the best utilisation of available resources with necessary coordination between the various sectors of a development. This may follow three stages;

(a) Preparation of a long term comprehensive development Plan with 15 to 20 years prespective:

(b) Five year integrated programme and development budget with operational details and priorities; and

(c) drawing up and sanction of annual operating programmes and budget within the five year frame.

The annual programme budget will have to be drawn up after evaluation and review of the progress made in the various sectors each year followed by an overall five yearly assessment within the framework of the long term plan.

It also provides a basis for checking costs compared to the benefits of alternative packages of projects aimed at pragmatic goals, and permits a much tighter and more efficient implementation control and evaluation of large scale innovations.

The following procedure and operational sequence is followed:

(a) specifying programme objective;

(b) costing out from the inception to the terminal points;

(c) setting a time-horizon;

(d) devising procedure for realising the stated objectives;

(e) examining and analysing alternative packages solutions; and

(f) setting up management machinery for validation of the system.

6.7.3 Coordination mechanism—metropolitan urban level

The Planning and Development Authority should be equipped with adequate power to coordinate the development agencies working within the region and dovetail their own sectoral plan within the framework of the Development Plan. The Authority would have to be further given the powers to allocate resources within the planning regions. The Planning and Development Authority would undertake the following key tasks:

(a) Through discussions with each of the sectoral agencies, develop and coordinate a five year rolling programme of capital investments for each sector and the development plan. This should ensure that the process is linked to that of the annual budget, enabling positive resource allocations to be made in the achievement.

(b) This process would be linked with a monitoring and evaluation system which sets programme targets and objectives and assesses their achievement through a series of performance indicators.

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CHAPTER 7

TRAINING AND RESEARCH IN PLANNING

7.1 THE OBJECTIVE OF PLANNING EDUCATION

The reorientation of the present planning process from a largely physical in its approach to that of a coordinated physical, socio-economic and fiscal approach underscores the need for planning education in our country to shift from the present concern for training land use planners, to that of developing professional skills for guiding very complex, inter-related processes of social and economic change brought about by national development.

The Working Group is of the opinion that planning education must, therefore, relate physical planning at all levels directly to social and economic goals of our nation in order that the entire process of planning in general can affect the pattern of social and economic development.

7.1.1 **Physical Planning as it affects Planning Education**

Physical Planning, in broad term, is the ordering and systematising of a great many facets of the physical environment. There are four principal points, each of which must be considered in establishing the objectives of education for physical planning in our country.

First, since the physical environment itself in our contemporary society is so complex, planning education must develop within the "whole persons" particular emphasis dealing with the specialised phases of the physical environment, i.e., the geographic region, the metropolitan urban region, the city and urban project planning. Each of these have certain inherent characteristics which affect directly the extent to which physical planning is possible or significant and hence, the approach to planning education.

For example, in the first, regional resources planning, natural or geophysical forces, tend to dictate a good many elements of the plan and major policy decisions. At the second level, the metropolitan urban region, physical planning can become more subject to the man-made factors, though the general lack of direct regional controls would make them less easy to achieve than at the city level, where direct authority is more acceptable. Here, physical planning in terms of development plans (master plans), zoning etc., can be far more prevalent and also require more design sense than in the first two instances. In the fourth level, detailed site or project planning, physical planning and design play the most forceful part.

Secondly, since the end-product of planning is the improvement of human life one essential instrument is the physical environment, on which other factors depend heavily. The physical environment as it stands or as it is shaped, plays a major role in influencing social patterns and economic productivity. The best social and economic plans can be thwarted or even impeded with a poor quality of physical planning at its various levels.

Our country, whose economists are working to increase industrial productivity and which has no physical (spatial) plan for balanced distribution of industrial urban centre, can find an uncontrollable industrial accumulation in few urban centres to be an ultimate deterrent to their national policy objectives.

Thirdly, the physical planner must be educated to become socially effective, and a careful balance must be set up between his sense of values as they relate to physical scene, and the social conditions which the physical environment should affect. It is in this area, perhaps, where training of physical planners in our country has failed, much of town planning has failed, and in many ways, the field of architecture has missed the point in placing major emphasis on physical design and form, without a proper understanding of the social objectives of building design, as it relates to the Indian family and to the community. Here, a close collaboration with related specialists is essential.

Lastly, since the role of physical planner is to effect social and economic development, it is essential that he has an understanding of the community's wants and how his planning will affect these objectives. His responsibility is really one of translating public policy into physical terms. In dealing with physical planning education, the physical environment for these purposes must be seen as a total environment, since all elements within it are so intimately related. At the level of the geographic region, mountain areas and forested slopes may determine capacity of river and useability of valley soils and, therefore, agricultural productivity and ultimately population holding capacity. At the urban level, the network of highways and roads, their alignments and capacities may determine building intensity, population density and land use and eventually individual site design. It is this close relationship of the various elements of the physical environment that make planning education at once narrow and broad, specialised and general, and hence, a challenging field to work in.

Specific physical elements provide the primary materials with which the physical planner deals, and in his education he must be made fully aware of the reality of these materials; however, he must see clearly the objectives of social and economic development in human terms. This, indeed, must be our basic objective in physical planning education in India.

7.1.2 Social and Economic Development Ultimate Objective of Physical Planning

The basic question here is, to what extent can social and economic development be affected at each of the levels of planning referred to earlier. Since urban planning or town planning deals primarily in the physical arrangement of the environment, it is only at the broad regional level that planning can most affect social and economic development. Here, we have the opportunity to establish the very nature of a region's life and activities; the pattern to be worked out for each urban area, is in fact, established at this broad level; the extent of social change can be established at a high level, pre-determining in a basic way, the details of planning a recreation centre for example, or the kind of housing to be provided.

It would follow then, that in our country where social and economic development is a particular objective of physical planning, it would be essential to relate these closely. This need for social and economic development underscores the need for an emphasis on education for physical planning at the broad regional level.

Obviously, there is a tremendous need for a broad programme of education in many phases of planning in order to properly guide the marked trend towards urbanisation in India. It would seem that in planning educational programmes for India, physical planning and planning for social and economic development should come along hand in hand, which is not the case at present. Through such programmes, we should be able to develop for each level of planning, our own body of knowledge and concepts, and thereby contribute broadly to the framework of our common universal objective—the improvement of human life in our country.

7.1.3 Need for Basic Qualifications in Planning

One issue of planning education which has received very little attention in our country is whether the education of planners should be at the under-graduate level or at post-graduate level. Planning education in India is carried out at the post-graduate level, which originated in the West. It was then argued that planning is such a complex subject that those who study it must come to it with a high level of maturity and experience provided by study for an under-graduate degree in another discipline like Architecture or Civil Engineering. Furthermore, since planning draws upon several disciplines, a thorough grounding in one or a number of these would provide a suitable background for the study of planning, since the student can bring to bear on his studies the methods and findings of his parent discipline. On the other hand, students who come to planning from analytical disciplines of social sciences, take some time to come to grips with such an action oriented, prescriptive discipline as planning. Moreover, because they have already spent 4 to 5 years doing one Degree, the time devoted to post-graduate training in planning (just three semesters) is necessarily too short for them to have little or more than a superficial acquaintance of the knowledge necessary for planning action.

Under-graduate planning education will give the students a wide general background in planning, to enable him to participate in the solution of problems. This general planning education would later be strengthened by specialisation in one or more areas of planning. Such a student will have a synoptic view of planning process when, later he specialises in a subject such as regional planning, transportation planning, housing and community development and so on.

Under-graduate programme is preferable for our country. Apart from the fact it generally takes a shorter time to prepare a person for the planning profession, the fact that the initial university education is in planning would make the identification of potentially good planners for advance training and specialisation in the planning field easier.

7.1.4 Planning Curriculam

The teaching approach, techniques and curricula of planning schools in our country, to a large extent, reflect those of the developed countries. There is also the tendency to introduce courses with subject matter which is inappropriate to the needs of our country. Nevertheless it is gratifying that of late planning schools in India have been reviewing their curricula and teaching approach. As a result adjustments are being made to the courses to satisfy local conditions. But the process is rather slow. The Working Group would like to stress the urgent need for the planning schools in India to build up indigenous course material based on sound research and thus help develop an Indian approach to planning at urban as well as regional levels.

7.2 TRAINING OF PLANNING TECHNICIANS

7.2.1 To deal effectively with the problems posed by urbanisation a large number of planners would be increasingly required at various levels of planning. Since the problems are very acute and demand immediate action the planners needed must be produced within the shortest possible time. Planning education, by its very nature cannot be compressed into a very small space of time. Therefore, we cannot produce planners anywhere near the quantities required.

7.2.2 The Committee of Ministers appointed in 1965 to report on the shortage of town planning personnel estimated that 2,100 planners would be required by 1975 as against only 170 town planners available in 1966. Today, about 12 years later, there are just about 1000 town planners in the country.

7.2.3 Under the circumstances, the Working Group is of the opinion that one solution to this problem is to develop a cadre of sub-professional planning personnel, who can be trained in a relatively shorter time.

7.2.4 The purpose of sub-professional level training is to produce qualified persons who are able to assist professional planners in carrying out their tasks. The sub-professionals should be able to perform relatively less complicated tasks, leaving the professional planner to devote his attention to more complex problems of planning.

7.2.5 However, the need for increasing the number of professional planners required at the Centre, State, regional, district and city level cannot be ignored. This implies expansion of educational facilities in planning by establishing new school of planning. There are at present only 6 schools; their number has not increased since the last two decades. The 6 schools together produce about 150 professional planners per year, whereas the Ministerial Committee had estimated the increase to be about 250 per year. The Working Group, therefore, recommends that the Ministry of Urban Development at the centre should have the estimates made by the Ministerial Committee on shortage of town planning personnel updated to determine the number of additional planning schools to be set up in the country.

7.3 IN-SERVICE TRAINING

7.3.1 The in-service or on the job training is not being effectively exploited in our country. It is only the Institute of Town Planners (India) which has made it possible for persons to enter the planning profession by direct examination. The Working Group is of the opinion that the planning schools in our country consider seriously introducing part time evening courses in planning. These types of in-service or on the job training programmes help the junior or lower level officers to choose town planning as a profession and to prepare for appearing in the professional examinations with a view to qualifying ultimately as fully qualified town planners. The short-term training programmes are of particular help to unqualified planning staff in the State and local planning departments and provide them appropriate orientation in subject and by building up their background to an extent as would make it possible for them to discharge their functions with greater understanding and appreciation.

7.3.2 **Short-term/Refresher Courses**

Through short-term and refresher courses new planning techniques can be made available to practising planners. This is another form of education which is not being pursued very much except on few occasions. The Working Group would like to suggest that the Central Town and Country Planning organisation as well as the State Town ad Country Planning organisations in collaboration with planning schools in various parts of the country organise periodic refresher courses as a regular feature.

7.4 RESEARCH IN URBANISATION AND PHYSICAL PLANNING

7.4.1 Experience has shown that the information needed for planning at all levels is very limited in our country. The existing gaps in the knowledge of regional and urban planning are many and wide. There is a lack of thorough understanding of the impact of urbanisation on the structure and form of our cities and region. Planning would be misleading if carried out without an understanding of the nature and causes of urbanisation. Planning is just not possible without the aid of research.

7.4.2 It was observed that our country has not made much progress in establishing research institutions exclusively for urban and regional affairs, the exception being the National Institute of Urban Affairs in Delhi. There is, thus, a need for expanding research facilities in the country. Research Wings should be set up in the Central TCPO and State Planning Organisations and in the planning schools. NIUA as an arm of the central Ministry of Urban Development should act as a clearing and coordinating agency for research in urban and regional planning of the various research wings in order to avoid overlaps.

7.4.3 The research in urban and regional planning should aim at understanding of the nature of the physical environment of the cities and regions, the social, economic governmental, legal and technological forces that shape them. The major objective of research should be to build up a body of basic data which planners, administrators, policy makers, etc., could draw upon in the course of their work.

7.4.4 Research should also be action oriented with the major objective of assisting urban planning agencies in carrying out their functions. First of all, research should be contextual in its subject matter, in that it will deal with urban planning problems in relation to the socio-economic development of our country. It should be oriented towards creating harmonious relationships among various ministers and action agencies for ensuring maximum integration of socio-economic planning policies and objectives with urban planning and should therefore be undertaken with the objective of facilitating the decision-making process.

7.4.5 Secondly, the research should aim at developing indigenous solutions to local problems. In order to make the solutions more practicable and workable, the socio-cultural aspects should be taken into consideration.

7.4.6 Thirdly, research should be done on a continual basis in order to disseminate information and output. It will, thus, contribute towards dealing with the socio-economic changes as well as the growing needs of the people in urban areas. In the broader context, research should be action-oriented and complementary to the urban planning process.

7.4.7 While it is necessary to orient research towards solving practical problems of the cities and regions, fundamental research aimed at evolving basic principles and standards should not be overlooked. Basic or theoritical research and applied or action-oriented research in urban and regional planning mutually supplemented and stimulated with each other.

7.4.8 The Working Group suggests that the NIUA should be strengthened and made responsible for collecting data, undertaking research, evaluating planning work and preparing guides and manuals to assist planning organisations in the country. The results of research carried out by NIUA and other research wings of planning organisations should be disseminated, research methods and techniques could be mutually shared.

7.4.9 The Working Group noted with concern the existing shortage of qualified planners, research workers, and the training facilities available in the country. The number of universities and institutions offering courses in urban and regional planning was too small to meet our needs. Therefore, in order to enable the planning of the training facilities required to meet present and future demands, in both quality and quantity, it is recommended that a detailed survey be undertaken by the Central Ministry of Urban Development with the assistance of the Institute of Town Planners, India to determine: the number of urban and regional planners and research workers required at present and during the next 20 years; the facilities required for education training and research in this field. The survey should include an evaluation of the achievements of the existing planning schools, and of the research institutions in urban and regional planning.

7.4.10 The Ministry of Urban Development in collaboration with ITPI should set up Task Forces of experts representing academic institutions and planning organisations to examine the strengthening of existing planning schools and the establishment of new ones. Equally important, the Task Force should examine the desirability of establishing research organisations, their scope and content.

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SUMMARY AND CONCLUSIONS

1. Physical Planning which is synonymous with town planning is the process of spatial development of human settlements. It concerns with the design and management of the physical environment of settlements in accordance with pre-determined policies whereby balanced social and economic objectives may be achieved. Physical planning, therefore, has to consider the spatial implications of economic policies and programmes and to anticipate and plan for the spatial impact of activities generated by such policies. (para 1.2)

2. A study of the ancient history of India suggests that the physical planning practices had originated during the Mohanjo-daro and Harappa/Vedic periods which depicted the primary features of town and village planning like demarcation of space-based functional and occupational characteristics and creation of related guidelines. (para 2.1)

3. Five significant periods—Mohanjo-daro, Harappa/Vedic period, Budhist period, Moghul period, Colonial period, and the Post-Independence period can be identified in the Indian History which have created important landmarks in the evolutionary process of physical planning in the country touching upon aspects like the growth and development of settlements, occupational patterns, judicious use of resources, creation of urban complexes and eventually to the emergence of the concepts of town planning schemes for better infrastructure. (para 2.2.1—2.2.4)

4. The Post-Independence period witnessed the emergence of the economic planning beginning with the First Five Year Plan. The economic planning, inter-alia, envisaged the setting up of the town planning organisations, enactment of town planning legislation, preparation of Master Plans for towns and cities and setting up of financing and development agencies to facilitate urban planning and development. The economic planning also provided the backdrop for the implementation of central sector schemes like the Integrated Urban Development Programme (IUDP) and the Integrated Development of Small and Medium Sized Towns (I.D.S.M.T). (para 2.2.5)

5. Physical planning falls under the 'State List' and therefore is the responsibility of State Governments and consequently the planning efforts are governed by the State Planning laws. (para 3.1.1)

6. The local level structure for physical planning consists of different agencies like Municipal Corporations/Councils, Improvement Trusts, Cantonment Boards, Development Authorities etc., which take care of physical planning and Development of individual settlements by preparing and implementing the Master Plan/Development Plan giving the manner in which the land in urban area is to be used and prescribing zoning regulations and development control measures for enforcing the plan. The structure at State and Regional level includes State Town and Country Planning Department, Housing Board etc. At the national level, the Ministry of Urban Development is the nodal agency which plays an advisory role. It is assisted by other central organisations like Town and Country Planning Organisation (T.C.P.O.), Central Public Health Engineering Organisation (CPHEO), National Buildings Organisation (NBO), Housing and Urban Development Corporation (HUDCO), and National Institute of Urban Affairs (NIUA). (para 3.2.1—3.2.3)

7. Master Plan or Development Plan as the present principal activity of urban planning is only a static concept. Whereas, in a rapidly urbanising country, such as ours, physical planning must be seen as a dynamic, adaptive, iterative and continuous process of anticipating and managing social and economic changes as a consequence of national development. The concept of Master Plan has not succeeded in the Indian urbanisation context. (para 3.3.2)

8. The national economic planning policy is conceived in the form of sectoral allocation of resources rather than of spatial incidence of economic growth. On the other hand, physical planning is done only at local level. Thus, both the economic planning and physical planning follow diverse courses whereas contemporary urbanisation problems suggest a closer coordination and integration in these activities for national development. (para 4.3.5—4.3.6)

9. The present policies of our National Development Planning have not directed sufficient attention to a balanced spatial distribution of the economic activities (e.g. industries) and their accompanying phenomenon of urbanisation and their impact on the settlement pattern. (para 4.3.8)

10. An urbanisation policy can provide vital assistance to the urban centres and districts in formulating a perspective physical (spatial) planning framework to integrate the Centre's or State's long-range investment policies and programmes. This spatial planning framework can give spatial dimension to the national development objectives, targets and policies and which can contribute a lot towards the formulation of a national spatial strategy. (para 4.3.9)

11. The National Spatial Strategy would be long-term in nature in achieving the social goals and would concentrate on key issues and aspects of development; national settlement structure; population distribution; designation of growth centres; identification of development areas; utilities and services systems; communication networks; resource exploitation; spatial

distribution of industries; treatment of problem regions and consideration of major environmental issues. Thus, the spatial component of National Development Planning becomes the general scheme of physcial planning which is to be identified from an analysis of the entire country in pursuit of its socio-economic and other established goals and objectives. (para 4.3.10)

12. Regional Spatial plans only can determine the effective goals and integrate the various parts of a development programme efficiently through its physical interpretation of National Policy. In order to deal effectively with the physical planning problems generated by the economic and social development of our country, physical planning service has to be made an instrument of government policy and physical planning process has to be established on three tiers of public administration namely the national, State/Regional and local. (para 4.7)

13. Formulation of a set of land policies is one of the most essential components of a planning strategy as it has to strike a balance between the larger interests of the community represented by the State and local governments on the one hand and the limited interest of the individual land owners on the other. (para 5.2 & 5.6.1)

14. Since land is a limited resource and the land-man ratio is dwindling day by day, there has to be effective public intervention in fiscal, legal and spatial aspects to subserve broad objectives of settlements and shelter programmes. (para 5.6.2)

15. The Land Acquisition Act 1894, must be comprehensively reviewed and received to make acquisition procedures simple. (para 5.3.1)

16. The Urban Land (Ceiling and Regulation) Act 1976 needs modifications to make it flexible and responsive to the dynamics of urban growth. A step in the right direction has already been taken by the National Commission on Urbanisation by making recommendations for amending various provisions of this Act to remove the constraints and increase the supply of urban land. (para 5.3.2)

17. Land use policies and practices have a direct bearing on national, regional and local economics, productivity, health and efficiency. A land use control system should therefore have the objective of strengthening urban economy, improving physical environment, conserving ecological equilibrium and fostering social values. In order to achieve this objective a set of "development regulations" will have to be evolved with zoning laws being an integral part of them. (para 5.3.4 & 5.3.5)

18. Provision of comprehensive urban and regional planning legislation to facilitate the implementation of long-term development plans has assumed great urgency. (para 6.1.2)

19. Not all the States have enacted Town Planning Acts, neither all such Acts have the enabling provisions for the Plan implementation. In order to integrate and coordinate planning, development, plan implementation and enforcement at various levels, a uniform planning law is necessary. (para 6.2)

20. For an effective administrative set-up for physical planning, the following arrangement is proposed:

(a) Central Level

Separate Urban and Regional Planning Division may be set up in the Planning Commission to formulate appropriate guidelines for translating national development programmes into their spatial dimensions. This division should be equipped with professional town planners from multi-disciplines capable of planning, project formulation, project appraisal and monitoring. (para 6.6.1)

The Ministry of Urban Development should be redesignated as Ministry of Urban and Regional Development and should be entrusted with the responsibility of formulating national physical development guidelines and related legislations. (para 6.6.1)

The Town and Country Planning Organisation would have to be suitably strengthened so that it can function as the main technical arm of the Ministry. The TCPO should assist the planning commission and the Ministry in advising and evolving physical development guidelines. (para 6.6.1)

(b) State Level

State Regional and Town Planning Boards should be established by the States to coordinate, guide and assist the government in the planned development of the regions and urban settlements of the state. (para 6.6.2)

(c) Regional Level

Regional Development Authority at the sub-state level should be created and made responsible for formulation, coordination and supervision of all planning and works relating to the development of the region. (para 6.6.3)

(d) District Level

District Development Board should be created at the District level. The District Planning Officers of the Town and Country Planning Department should prepare District Development plans and Development (Master) plans for urban settlements. (para 6.6.4)

(e) City/Town Level

At the local level, especially at the urban settlement level, physical planning (city planning) should be made an administrative function of formulating policies, programmes and projects for accomplishing urban development objectives within the structure of the city government. The physical planning department of the city should be responsible for translation of the State/Regional plan in so far as it affects the city/town under its jurisdiction, in their physical development plan. (para 6.6.7)

21. The re-orientation of the present planning process from a largely physical in its approach to that of a coordinated physical, socio-economic and fiscal approach underscores the need for planning education in our country to shift from the present concern for training land use planners, to that of developing professional skills for guiding very complex, interrelated processess of social and economic change brought about by national development. (para 7.1)

22. The Working Group is of the opinion that planning education must, therefore, relate physical planning at all levels directly to social and economic goals of our nation in order that the entire process of planning in general can effect the pattern of social and economic development. This need for social and economic development underscores the need for emphasis on education for physical planning at the broad regional level. (para 7.1)

23. Regarding teaching approach, techniques and curricula of planning schools in our country, the Working Group would like to stress the urgent need for the planning schools in India to build up indigenous course material based on sound research and thus help develop an Indian approach to planning at urban as well as regional levels. (para 7.1.4)

24. The existing facilities for planning education cannot produce adequate number of planning professionals to deal effectively with the problems posed by rapid urbanisation. Under the circumstances, the Working Group is of the opinion that one solution to the problem is to develop a cadre of sub-professional planning personnel, who can be trained in a relatively shorter time. (para 7.2.3)

25. The in-service or on the job training is not being effectively exploited in our country. It is only the Institute of Town Planners (India) which has made it possible for persons to enter the planning profession by direct examination. The Working Group is of the opinion that the planning schools in our country consider seriously introducing part time evening courses in planning. These types of in-service or on the job training programmes help the junior or lower level officers to choose town planning as a profession and to prepare for appearing in the professional examinations with a view to qualifying ultimately as fully qualified town planners. (para 7.3.1)

26. The Working Group suggests that the NIUA should be strengthened and made responsible for collecting data, undertaking research, evaluating planning work, and preparing guides and manuals to assist planning organisations in the country. The results of research carried out by the NIUA and other research wings of planning organisations should be disseminated, research methods and techniques could be mutually shared. (para 7.4.8)

27. The Ministry of Urban development in collaboration with ITPI should set up Task Forces of experts representing academic institutions and planning organisations to examine the strengthening of existing planning school and the establishment of new ones. Equally important, the Task Force should examine the desirability of establishing research organisation, their scope and location. (para 7.4.10)

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ANNEXURE I

EVALUATION OF THE EXISTING PLANNING LEGISLATIONS IN THE STATES

Sl. No.	Name of the State/ UT	Name of the Act	Level at which applicable	Nature of enactment	Remarks
1	2	3	4	5	6
1.	Andhra Pradesh .	Andhra Pradesh Urban Areas Develoment Act, 1975.	Local-urban areas Metropolitan area.	Planning & Development.	Legislation not comprehensive since it does not cover rural areas of the State.
2.	Assam . . .	Assam Town of Country Planning Act, 1959 as amended in 1984.	Local-Urban areas	Planning & Development.	Do.
3.	Bihar . . .	Bihar Regional Development Authority Ordinance (Ist Promulgated in 1975).	Local-Urban areas, Regional level.	Planning & Development.	Bihar Regional Development Authority Bill is under consideration by State Government.
4.	Gujarat . .	Gujarat Town Planning and Urban Development Act, 1976.	Local-Urban areas, Metropolitan areas,	Planning & Development.	This is a comprehensive legislation.
5.	Haryana . .	(i) Punjab Scheduled Roads and controlled Area Restricted of unregulated Development Act, 1963.	Regional level		No Town Planning Act existse. Comprehensive Town Planning Act is under consideration.
		(ii) Haryana Urban Development Authority Act, 1971.	Local-Urban Areas	Planning & Development.	
6.	Himachal Pradesh .	Himachal Pradesh Town & Country Planning Act, 1971.	Local-Urban Areas	Planning & Development.	Legislation not comprehensive since it does not cover rural areas.
7.	Jammu & Kashmir .	The Jammu & Kashmir Town Planning Act, 1963.	Local-Urban Areas	Planning only.	No comprehensive legislation exists. Bill for the same is under consideration of the Govt.
8	Karnataka . .	Karnataka Town & Country Planning Act, 1961 as amended upto 1964.	Local-Urban areas Metropolitan areas	Planning & Development	Legislation not comprehensive A comprehensive draft Bill is under consideration of the State Government.
9.	Kerala . . .	(i) The Travancore Town & Country Planning Act, 1945.	Local-Urban Areas	Planning & Development.	There is no comprehensive Town Planning Act to cover the entire State.
		(ii) The Travancore Town Planning Regulations, 1932 as amended in 1960.	Do.	Do.	
		(iii) The Madras Town Plg. Act, 1920 as amended in 1975.	Do.	Do.	
10.	Madhya Pradesh .	Madhya Pradesh Nagar Tatha Gram Nivesh Adhiniyam 1973.	Local-Urban Areas Metropolitan areas, Regional level	Planning & Development.	This is comprehensive legislation
11.	Maharashtra . .	Maharashtra Regional and Town Planning Act, 1966 as modified upto 1975.	Local-Urban areas Metropolitan areas, Regional level	Planning & Development.	Do
12.	Manipur . .	Manipur Town & Country Planning Act, 1975.	Local-Urban areas Regional level	Planning & Development.	Do.
13.	Meghalaya . .	Assam Town & Country Planning Act, 1959 is in operation.	Local-Urban areas	Planning & Development.	No Town Planning Act exists. The Act in operation is not comprehensive since it does not cover rural areas of the State.

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ANNEXURE I—*Contd.*

EVALUATION OF THE EXISTING PLANNING LEGISLATIONS IN THE STATES—contd.

1	2	3	4	5	6
14.	Nagaland	Nagaland Town & Country Planning Act, 1966.	Local-Urban Areas	Planning & Development.	Legislation not comprehensive
15.	Orissa	Orissa Town Planning & Improvement Trust Act, 1996 on amended in 1976.	Local-Urban Areas	Planning & Development	Do.
16	Punjab	Punjab Town Improvement Act, 1922.	Local-Urban Areas	—	There is no comprehensive legislation.
		The Punjab Schedule road & control areas (restriction of un-regulated development) Act, 1963.	Regional level		
17.	Rajasthan	Rajasthan Urban Improvement Act, 1975.	Local-Urban Areas Metropolitan	Planning & Development.	Legislation not comprehensive
18.	Sikkim	No Planning legislation exists at present.	..	..	..
19.	Tamil Nadu	Tamil Nadu Town & Country Planning Act, 1971.	Local-Urban Areas. Metropolitan areas, Regional level	Planning & Development.	This is a comprehensive legislation.
20.	Tripura	Tripura Town & Country Planning Act, 1975.	Local-Urban Areas	Planning only	Legislation not comprehensive
21.	Uttar Pradesh	Uttar Pradesh Urban Planning & Development Act, 1973.	Local-Urban Areas	Planning & Development	Legislation not comprehensive
22.	West Bengal	Town & Country Planning Act, 1979.	Local-Urban Areas	Planning & Development.	Do.
23.	Arunachal Pradesh	No Planning legislation exists at present.	..	..	..
24.	Mizoram	No Planning legislation exists at present.	..	..	..
25.	Goa	Goa, Daman, Diu & Town & Country Planning Act, 1976.	Local-Urban Areas Regional level	Planning & Development.	This is a comprehensive legislation.

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REFERENCES

ARCHER, R.W: "Urban Land Pooling Research and Documentation Project". Human Settlements Division, Asian Institute of Technology, Bangkok, 1978.

DEVARAJ: "City Development Plans and their Implementation". A Seminar Working Paper.

FERNANDES, B.G: "The Conditions of Urban Growth in India with Implications for Planning". A paper prepared for the National Commission on Urbanisation, Government of India, Ministry of Urban Development, New Delhi, May, 1987.

India, Government of; Ministry of Health, Town and Country Planning Organisations: "Town and Country Planning in India", New Delhi, March, 1962.

India, Government of; Ministry of Works and Housing, Town and Country Planning Organisation: "Regional Planning Efforts in India", New Delhi, December, 1982.

India, Government of; Planning Commission: "Report of the Working Group on District Planning", Vol. II, 1985.

India, Government of; Ministry of Urban Development: "Report of the Study Group on Town Planning and Building Regulations", 1981.

India, Government of; Ministry of Urban Development, Town and Country Planning Organisation: "Legislation on Town and Country Plannig in India: Existing Provisions in the State Act", 1985.

India, Government of; Ministry of Works and Housing: "Report of the Study Group on Training and Research in Regional Planning", 1972.
ment Law".

India, Government of; Ministry of Urban Development, Town and Country Planning Organisation: "Model Regional and Town Planning and Develop-

India, Government of: "Report of the Committee on Urban Land Policy". (Report of Fazlur Rahman Committee) Ministry of Health, New Delhi. 1965.

India, Government of; Ministry of Urban Development: "National Commission on Urbanisation Interim Report", The Ministry, New Delhi, January, 1987.

India, Government of: Ministry of Urban Development: "National Housing Policy Draft", The Ministry, New Delhi, January, 1987.

India, Government of; Ministry of Health: "A Note on Urban Land Policy". Central Regional and Urban Planning Organisation, New Delhi, 1962.

India, Government of: Ministry of Works, Housing and Urban Development: "Report of the Committee of Ministers on Shortage of Town Planning Personnel", New Delhi, August, 1966.

India, Institute of Town Planners: "Report of the Task Force on Professional Matters, Urban Development and the Town Planner", New Delhi.

International Society for City and Regional Planners Association Bulletin Special Issue, 1987.

Karnataka Government of the State of: "Committee on Urbanisation in Karnataka—Interim Report", Economic and Planning Council of Karnataka, January, 1987.

Menezes, Louis: "Measures to Controlling Urban Land Ownership and Tenure". A Paper presented at the Course conducted by the United Nations Centre for Human Settlements and Economic Development Institute, World Bank, Colombo, February, 1982.

Menezes, Louis: "Urban Land Market and Elements of Urban Land Policy". A paper presented at a course conducted by United Nations Centre for Human Settlements and Economic Development Institute, World Bank, Colombo, February, 1982.

National Institue of Urban Affairs: "Organisation for Urban Planning and Development". A study conducted under the Joint Indo-British Programme, Part II, Final Report, New Delhi.

SAINI, N.S., ANSARI, J.H., CHATTERJI, M.N.: "Evolution of Urban Planning in India". A study conducted for the National Commission on Urbanisation Government of India, Ministry of Urban Development, New Delhi, December, 1987.

SHARMA, P.N.: "Integration of Spatial and Economic Factors in the Planning Process". An analytical study conducted for the National Commission on Urbanisation, Government of India, Ministry of Urban Development, New Delhi, 1987.

SINGH, B.N.: "An approach to Urban Land Policy Some Thoughts". National Capital Region Planning Board, Ministry of Urban Development, New Delhi.

SIVARAMAKRISHNAN, K.C. : "Urban Land Issues and Constraints". Paper presented at a course conducted by United Nations Centre for Human Settlements and Economic Development Institute, World Bank at Colombo, February, 1982.

VAGALE, L.R. "Integration of Urban and Sectoral Plans within Higher level plans—Urban Development Planning Strategies and Techniques", School of Planning and Architecture, New Delhi.

VAGALE, L.R. : "Need for a Scientific Urban Land Policy and Programme as an Integral part of Housing and Regional Planning". A paper presented at the symposium on "Science and Nation", organised by the Association of Scientific Workers of India, the Association, New Delhi, July, 1964.

VAGALE, L.R.: "Planning and Provision of Shelter for the Poor". A paper presented at the 35th Annual Town and Country Planning Seminar of the Institute of Town Planners, India, held at Madras, February, 1987.

VAGALE, L.R.: "Planning and Provision of Shelter Policies in the National Development Plans of India—Towards a New Approach". A paper presented at the 36th Annual Town and Country Planning Seminar of the Institute of Town Planners, India, New Delhi, held at Bhubaneswar, January, 1988.

VAGALE, L.R. : "Land Use Controls and their Impact on the Land Situation in Metropolitan Bangalore". A paper presented at the Indian Capsule Programme on Management of urban Development, Organisation, Ministry of Urban Development, Government of India, New Delhi, and the Institute of Local Government Studies, University of Birmingham, U.K. conducted at Bangalore, Janaury, 1988.

VAGALE, L.R. : "An Overview of the Metropolitan Economy and Land Uses". A paper presented at the Indian capsule programme on management of Urban Development, organised by Town and Country Planning Organisation, Ministry of Urban Development, Government of India, New Delhi and the Institute of Local Government Studies, University of Birmighan, U.K. held at Bangalore, January, 1988.

VAGALE, L.R. : "Urban Land Use Planning: A Conceptual and Analytical Framework". A paper presented at the course jointly coducted by the United Nations Centre for Human Settlements (HABITAT) and Economic Development Institute, World Bank, Colombo, United Nations, February, 1982.

VAGALE, L.R. : "Urban Land Policy, and Land Bank Commission A case study" A paper presented at the Training Course conducted by the United Nations Centre for Human Settlements (HABITAT) and Economic Development Institute, World Bank, at Colombo, United Nations, February, 1982.

VAGALE, L.R. : "Zoning—Scope and Procedure, Polytechnic, Ibadan, Nigeria, May, 1974.

VAGALE, L.R. : "Regulations Controlling the Subdivision of Land". Ministry of Lands and Housing, Government of the Western (now Oyo) State of Nigeria, Ibadan, Nigeria, 1969.

VAGALE, L.R. : "Rent Control in Nigeria—A Policy Framework". Ministry of Lands and Housing, Government of the Western (now Oyo), State of Nigeria, Ibadan, Nigeria, 1971.

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REPORT OF WORKING GROUP
ON
INTER & INTRA CITY TRANSPORT

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PREFACE

A 3-Member Working Group on 'Inter & Intra-State Transport' was constituted by the National Commission on Urbanisation, Government of India, Ministry of Urban Development on 9th October, 1986 and one Member was added to it on 13th December, 1986. The Group was finally composed of:—

1. Shri Virendra Prakash, — Convener
   Additional Secretary to Government of India and Adviser (State Plans), Planning Commission, New Delhi.
2. Prof. S. Raghava Chari, — Member
   Professor & Head of the Civil Engineering Department and Centre for Transportation Engineering, Regional Engineering College, Warangal.
3. Shri G.N. Phadke, — Member
   Chief Engineer, Metro Railway, Calcutta.
4. Shri G. Kumar, — Member
   Joint Director (Electrical), Metropolitan Transport, Railway Board, New Delhi.

2. In its first meeting, the Group concluded that it would be too much for the Group to go into the Intra-State Transport issues and that its work should be focussed only on problems of urban transportation. A suggestion was accordingly made. The Group was re-named in November, 1986 as the Working Group on 'Inter & Intra-City Transport' with the following terms of reference:

(a) Review state of the art of Inter and Intra-City transport system with reference to management, financing and passenger conveniences.

(b) Specify the role of mass and rapid transport systems in the prevalent and emerging urban scenario.

(c) Identify various options in the context of physical and financial resources.

(d) Suggest introduction of new improvements and expansion of the existing mass transport systems in urban areas where required.

(e) Examine any other matter having bearing on inter and intra-city transport systems.

3. The Working Group had 15 formal meetings in New Delhi and discussed various issues pertaining to the transportation problems in the cities. The Group inter-acted with the various eminent persons in the field and agencies engaged in dealing with the various aspects of transportation. In view of the very limited resources at its disposal, the Group decided not to undertake any primary studies of its own but to rely on available survey reports, plans, projections, etc. It sought the assistance of urban development and municipal authorities and of institutions, such as C.R.R.I., RITES, National Transport Planning & Research Centre (NATPAC), etc. and obtained a jarge body of information from them.

4. The Group also visited the local office of BHEL on 5th December, 1986 to study the mechanism and advantages of "Maglev System". The Group inter-acted with the Members of the Study Group on 'Alternative Systems of Urban Transport'. Some Members of the Group also visited Madras and Bangalore to study the transport net work and transportation plans of these cities and inter-acted with experts in this field.

5. The Working Group is grateful for the co-operation, support and assistance rendered to it by a large number of officials and non-officials in its work, among them, particular mention is due to Shri Naresh Narad, Member-Secretary, NCU for his understanding and help, to Shri R. K. Saxena, Research Officer, NCU, for valuable secretarial assistance and to Shri B. R. Sahni, P.S. to Adviser (State Plans) and Shri P. P. Malhotra, P.A. to Adviser (State Plans), Planning Commission in the processing of the Report on word-processor with great personal involvement.

CHAPTER I

INTRODUCTION

1.01 Among the well recognised problems thrown up in the process of rapid urbanisation of the developing economy of India, is one of providing reasonably adequate facilities for the transport of city-dwellers from one part of the sprawling urban centres to the other. Urban transportation systems have mostly evolved in response to rising requirements in a haphazard manner, leaving very much to be desired. The inadequate attention bestowed on the planning, development and management of urban transport has led to a situation which is highly unsatisfactory not merely from the point of view of the commuters but also from the standpoint of the society as a whole. While resource constraint is recognised as one of the obstacles to the establishment or an adequate public transport system, the glaring fact remains that transport needs of the urban population in large cities are being met in a manner which is wasteful in terms of scarce resources—both capital as well as revenue available to the community.

Urban transport—whose baby?

1.02 The answer to the simple question as to where the overall responsibility for the provision of reasonably adequate urban transport lies, remains unclear. Neither at the city level, nor at the State level nor even at the level of Central Government is there a well defined, duly empowered authority responsible for taking a total view of urban transport planning and steering the course of its development on proper lines. It may not be exaggeration to say that of all the infrastructural requirements which are pre-requisites for the city life to function, it is urban transport alone which does not have an identified mentor. Different segments of the system and different facilities are looked after by different agencies. Thus, rail-based mass transportation systems have been planned, executed and managed by the Indian Railways. Bus systems have been left to be developed either by the municipal authorities or by the state roadways or by separately established corporations which often evolve from private operators. The bus service in the capital city of Delhi, for example, started with a private company, in 1935: was nationalised in 1948 under the Ministry of Transport, it was placed under the Municipal Corporation of Delhi in 1957 only to be brought back under the Ministry of Transport as a Corporation in 1971. The chequered history of the DTC and the zig zag path that it took in its evolution bear an eloquent testimony to the wayward manner in which the public transport system even in the capital city has grown over the years.

1.03 There is again a conspicuous lack of consistent, long-range planning in the matter of development of road spaces and road site facilities for the road-based public transport system, with development authorities, municipal bodies, public works departments, etc., all having a finger each in the pie and often exhibiting little consciousness towards or bringing to bear the requisite level of expertise on assessing and providing for the needs of public transport in a systematic manner. As for traffic signalling and other physical controls, there are other agencies and the policing of roads and traffic regulation is the responsibility of the State police force which is not particularly well-attuned to meet the requirements of the civic and transport authorities.

1.04 At the state level, the fractured organisation for urban transport visible at the city level continues to be duly replicated. The situation is no better at the level of the Central Government where, although the Ministry of Urban Development has been made responsible for urban transport, there is no distinct and separate department for urban transport, planning and direction. The Departments of Surface Transport and Railways continue to have their own independent role in the planning and development of the related transport infrastructure and transportation systems.

Current status

1.05 The unsatisfactory manner in which the city dwellers are carried by the public transport system from one place to another hardly needs to be elaborated upon. It is a matter of daily occurrence for the people to wait for long durations without any protection from sun or rain. Only to be picked up by a bus which is already over-crowded, even beyond its "crush load" capacity. It is often as big a problem to get out of the bus at one's destination as it is to get into it in the first place. The situation is no better in regard to rail segment of public transport in and around the metropolitan cities of Bombay, Madras and Calcutta, where railways play a significant role in meeting the demand of suburban traffic. In Bombay, for instance, the share of the railways in public transport is as high as about 55%. Yet, the demand outstrips the supply and travel conditions are far from satisfactory. During the peak hours the commuters are carried in the EMUS parked like sardines with each train carrying about 3500 passengers as against its sitting capacity of around 900 passengers only. In short, in overall terms, the frequency, the reliability, the passenger comforts, the speed—all the essential requirements of reasonable comfort and decent city travel are mostly conspicuous by their absence.

1.06 This state of affairs has come about because of the fact that public transportation has not been accorded the priority that it deserves, particularly in a poor developing country like ours. Judging by the extent to which there has been an explosion of privately-owned automobile population in all the major cities, it would be fallacious to assert that the public transport system has been so poorly provided because of the overall lack of resources. It is apparent that while the scarce resources of the nation have been allowed to flow comparatively generously to support the manufacture and acquisition of motor cars and two wheelers, the far more cost effective, energy efficient and socially desirable public transport system has not been allocated a proper and fair share out of the national kitty. As a direct consequence of the pervasive neglect to which public transport has been subjected, the supplies of rolling stock and of all other facilities needed to make it discharge its social responsibility, have remained woefully inadequate year after year. The city of Delhi, for example, has never been able to acquire the number of buses that it needed to replace the ageing stock most of which had become a liability and to add to its fleet the required number of buses which would have made travel within the city decent and comfortable. In 1980-81, for example, as many as 509 of the 2454 of the DTC buses were over-aged. The total number of buses available were, at least, one third less than what would have met the requirements of the situation to a satisfactory level. Six years later, the situation was still no better with as many as 724 buses out of 3786 being over-aged and the total fleet again much smaller than that required to take care of the traffic demand of the city population. Similarly, the Pune Metropolitan Transport in 1983-84 had 356 buses with 50% of the fleet due for replacement and over 30% having outlived its running life. They required 100 buses to meet the existing needs of the commuters immediately and 100 buses every year for augmentation as well as replacement. Such instances are not rare; these, in fact, constitute the rule rather than the exception all across the city transport systems in the country.

1.07 Apart from the rolling stock, the availability of road space both for movement as well as for parking of buses, etc., has also been a major constraint on the operation of the urban transportation system. While, no doubt, the burgeoning size of the cities has rendered the original parameters on which the road spaces were laid out irrelevant, whatever spaces are available have come under heavy encroachments all along the busy roads in the cities. If parking spaces, bus shelters, bus-bays, etc., could be provided to the extent feasible and the traffic arteries kept free from the clogging encroachments, the carrying capacity of our roads could be vastly improved. This is a serious deficiency in the system which has remained unattended for want of the necessary will to enforce traffic discipline.

1.08 In one word, the current status of city transport in all our urban centres is way below the threshold of a civilized urban living. It is still a long distance away from emerging out of the darkshadows of grievous neglect at all levels. The lessons that should have been drawn from the experience of the Metropolitan cities have remained unnoticed with the result that the other cities which are presently on the high population growth curve seem likely to be condemned to follow the same tortuous path towards commuting choas which has become the hall-mark of existence in the largest of our urban centres.

Bergeoning growth of personalised transport

1.09 A predictable outcome of poor status of public transport has been the enormous rise in the use of personalised modes of conveyance. Despite the heavy, often unbearable burden which the acquisition and use of motorised personal transport casts on the household economy of most of the middle class persons, they are constrained to go in for their own means of transport resulting in an explosion of the population of personal motor vehicles on our already clogged urban arteries. Thus, although, the share of public transport in the total traffic in Delhi has risen to over 55% from around 1/3rd in the late sixties, the growth in the number of motorised two-wheelers has been of the order of 4500% during the 2½ decades from 1961 to 1985: the number of cars, jeeps and station wagons during the same period rose by a little over 1000%. The capital had as many as 6.38 lakh two-wheelers and 1.74 lakh cars in the year 1985 as against a mere 14000 buses, both mini and standard ones. Though the proportion of personal to public transport vehicles in Delhi is among the highest in the country, this kind of growth of personalised modes of transport in the absence of an adequate public transport system is again something which is to be found in all the larger cities of the country. The use of two-wheelers in comparison to the buses is socially wasteful in terms of capital cost, energy consumption, quality of environment, running expenses, use of road space, etc. It is equally devastating for the personal economies of most of the middle class households and is also a major contributor to the rising number of fatalities in road accidents in the cities.

1.10 The ubiquitous bicycle also continues to play a substantial role in meeting the transport needs of city-dwellers in several of the large cities including the capital city and in all the medium and smaller ones. While eminently defendable on several grounds, the cycle is certainly not an attractive transport mechanism in large cities where speed of movement with optimum use of route space in terms of persons carried per unit of time is a critical consideration. The use of the bicycle within the confines of neighbourhoods/localities for local travel appears to be a sound option. But where the bicycle traffic comes in close and direct contact with other fast-moving long-distance traffic, travel by the bicycle is not only counter-productive in terms of the use of the infrastructure but is also very hazardous. To wean the bicyclists away from their cheap transport would, obviously, require the growth of a convenient and very economic public transport system. Should that come to pass, the motorised two-wheelers would already have become a matter of free choice for the city-dwellers rather than a matter of costly compulsion as is the case today.

Conflict between passenger & goods traffic

1.11 No doubt, the life of the city is bound inextricably with the availability of goods of daily requirements of the citizens. A city has also to bring in, store and distribute massive quantities of merchandise for meeting the needs of the vast area that it serves. This involves a tremendous amount of carriage, warehousing, loading, unloading, wholeselling and retailing of articles of almost all kinds and varieties. The movement and parking of goods vehicles on the city roads naturally places a major load on the transport infrastructure of the city. Competition for transport facilities between goods and humans has come to assume the form of a major problem—one that requires to be tackled through imaginative planning and innovatively designed traffic management action. The objective must clearly be to maximize the extent to which the movement and handling of goods can be separated and distanced in time and space from that of the transportation of urban commuters.

Clogging of roads due to encroachments

1.12 Roadside and pavement vending has been an old tradition in the country. This has obviously to do with the tremendous movement of people who provide a ready mass of customers to vendors of all kinds of commodities. Roadside pavements are also used indiscriminately for the parking of vehicles. This problem is getting accentuated because of the rapid proliferation of personalised vehicles. Efforts made by the Municipal Authorities, Police, etc. to remove the vendors, vehicles, etc. from the roads remain largely unsuccessful on account of the absence of a climate of discipline and lack of political will to enforce order. The cost of this lack of discipline and political will to the society in terms of necessitating the creation of overhead or underground transport infrastructure is enormous. No doubt, an account will have to be made for the cost of alternative facilities that would need to be provided to the displaced road-side vendors if they are not to be deprived of their livelihood. But it must be accepted that as the roads, streets and pavements are for movement rather than for parking or vending, all impediments coming in the way of flow of traffic to be removed determinedly.

Mobility—accessibility conflict

1.13 At the same time, it must be recognised that the road and transport network has to perform two distinct functions, namely, mobility and accessibility. Unfortunately, these functions are inversely related in the sense that if access is increased, the mobility decreases and vice-versa. The congestion in the city is, in part, due to this very conflict between access and mobility. This problem cannot be solved by merely widening of the roads which is obviously subject to severe constraints, or by lane discipline but by segregation right from the planning level, of the roads and transport systems in terms of mobility and accessibility functions. For this purpose, an entirely fresh approach is needed in defining legally access controls and free access transport systems. The Indian Roads Congress has, in fact, issued a suitable classification for urban roads in India under IRC—1986 'Geometric Design Standards for Urban Roads in Plains'.

1.14 A similar problem exists on account of non-enforcement of appropriate activity locations compatible with transport networks. What is needed is a policy that permits higher order activities to be located on higher order transport networks. In other words, the transport planning and land use planning including that of urban structure should strive to satisfy the conflicting requirements of mobility and accessibility as well as of activity location and transport requirements.

City roads or death traps?

1.15 The choatic state of urban transport is taking a predictably heavy toll in terms of loss of life and injuries due to accidents on our city roads. In the latter part of the seventies, the number of persons killed per thousand vehicles in India was as high as 59 compared to 3.9 in U.K., 3.3 in U.S.A, 6.1 in Germany, 5.7 in Australia and 2.0 in Japan. (Please see Table 1.1) The implication for the city-dwellers of this high rate of mortality in road accidents is further underlined when it is noted that although a mere one quarter of the country's population resides in urban centres, three-fourths of the accidents take place in our cities and towns. The increase in the number of persons killed and injured in road accidents in Delhi between 1971 and 1981 illustrates the situation dramatically. Whereas 418 fatalities took place and 3698 persons were injured in 1971, the figures rose to 1072 and 3782 in 1981. In Bangalore, similarly, fatalities in road accidents rose by 118% from 168 to 366 and the number of persons injured went up from 1543 to 3581 between 1971 and 1981. In Madras, the fatalities rose from 184 to 339 and in Ahmedabad from 74 to 147 during the same period. The situation in Calcutta and Bombay is comparatively less alarming and this must be attributed to the high proportion of persons carried by the public transport and correspondingly less reliance on personalised and relatively hazardous modes of transport, particularly motorised two-wheeler bicycles, etc. (please see Table 1.2).

Policing of Urban arteries

1.16 The responsibility for turning the city roads into death traps lies also with the traffic regulation and enforcement agencies. In the first place, the authority to regulate, direct and control all kinds of traffic on city roads vests in the State Police whose primary focus is on the enforcement of law and order. Traffic, as part of law and order enforcement, receives minor attention; it remains rather an inferior activity in the police departments. The coordination between the local bodies and the police is generally very loose, with the municipal authorities unable to get timely and adequate police support for their encroachment removal operations. The evil of unauthorised construction for commercial gain also prospers on account of the lack of police powers and enforcement muscle with the local authorities. In point of fact, the division of power and responsibility between the two merely enables both to look the other way when unauthorised constructions are carried out, of course, for a price. The net outcome is that instead of being decongested the central business districts are getting even more densely exploited placing unbearably heavy burden on city transport system at its weakest points and leaving the hapless citizen to bear the burnt in all its diverse manifestations including pollution, accidents and so on.

Lack of coordination between transport modes

1.17 Lack of coordination between the operation of different transport modes, such as railways, the bus system, intermediate transport, private vehicles and so on is yet another problem which vastly undermines the optimum operation of the city transport systems. As an illustration, the provision of a Circular Railway without linkages to the business centres in the core of the city renders its roles inconsequential to the transport needs of the citizens. The existing infrastructure of the railways, which cuts across the cities, remains inadequately exploited for sub-serving the requirements of transportation within the city because it has historically been geared to the task of carrying long distance passengers from other cities and towns to the centre of the city. Since different parts of the transport net-work are not harmonised with each other as a systematical planned, well laid-out and efficiently managed system, the net outcome in terms of serving urban transport requirements remains sub-optimal. The scope for bringing the lay-out and operation of different transport modes within a city into a well-connected and fully coordinated system appears to have remained largely unexploited and the benefits that could flow therefrom with limited investments may well be beyond all expectations. This, however, is not possible until there comes into existence an overall planning, coordinating and executing agency which has the expertise as well as the authority to bring about the radical changes in time-honoured outlook, approach and objectives of the agencies presently involved in managing the different urban transport modes.

Transportation imperatives in urban planning

1.18 The close link between town planning and transport planning, though readily recognised and conceded, is more often than not ignored while deciding upon land use for various purposes. For example, the setting up of industrial estates at the outskirts of the cities without commensurate provision for residential, commercial, educational, recreational and other facilities for the large population that comes to work there, results in a great deal of pressure on urban transport. Similarly, the creation of colonies for slum dwellers in disregard to the long-standing places of work, tends to compound the transportation problem. What is even worse, the exploitation of land in the central areas of the cities by both the private sector as well as the municipal, development and other government agencies on the ground that it is extremely "valuable" land from a commercial point of view generates unacceptably large volumes of traffic in the core of the city leading to unmanageable traffic congestion. In their quest for resources even the development authorities which are responsible for decongesting the city centres and ensuring their balanced and orderly growth, themselves go about developing office and shopping complexes in already congested areas of the city. Instances without number can be cited in all cities. The process has not stopped despite greater awareness of the problem. The greed of short-term gain generally overtakes the needs of longer-term planning. No one disputes that the imperatives of decongestion and urban transportation must inform urban planning exercise at all levels. Yet, somehow these are the very needs that become an early casualty when decisions come to be taken on a case by case basis or when other considerations dominate decision making disproportionately. This is a pitfall which must be avoided.

TABLE 1.1

Various Accident Statistics for India and some Developed Countries (1978)

Item	U.K.	U.S.A.	Japan	India
Number of Vehicles (in '0000')	1708.1	15392.0	4419.7	330.4
Total Accidents	264.77	2156.00	464.04	144.23
Persons Killed	6831	51153	8783	21811
Persons injured (in '000')	343.0	3166.7	591.1	99.4
Accident rate (per 10,000 vehicles)	153	140	105	390
Fatality rate (per 10,000 vehicles)	3.9	3.3	2.0	59.0
Injury rate (per 10,000 vehicles)	198	206	134	260
Fatality to total casualties (%)	2.0	1.6	1.5	18.0

Source: National Seminar on Metropolitan Transport in India March 1 & 2, 1985 organised by the Times Research Foundation— Paper by S.M. Sarin, B.L. Suri, N.L. Bhatia and A.C. Sarna, "Road Traffic Accidents in Metropolitan Cities— An Anatomy & Needed Countermeasures".

TABLE 1.2

Comparison of Total Road Accidents and Casualties in six Metropolitan Cities of India for the years 1971 *and* 1981

City	Total Accidents		Persons Killed		Persons Injured		Total Casualties	
	1971	1981	1971	1981	1971	1981	1971	1981
Bombay	29866	23161	600	673	8916	6879	9516	7552
Calcutta	11088	8268	418	400	2770	2921	3188	3321
Delhi	6093	4384	418	1072	3698	3782	4116	4854
Madras	7525	5878	184	339	4440	3348	4624	3687
Bangalore	1634	4279	168	366	1543	3581	1711	3247
Ahmedabad	866	1676	74	147	780	1522	854	1669
Total	64872	47646	1862	2997	22447	22033	24009	25030
Total in India	114079	156268	14459	27265	70042	117116	85726	144381
%	56.9	30.5	12.9	11.0	31.0	18.8	28.0	17.3

Source: National Seminar on Metropolitan Transport in India March 1 & 2, 1985 organised by the Times Research Foundation— Paper by S.M. Sarin, N.L. Bhatia and A.C. Sarna, "Road Traffic Accidents in Metropolitan Cities— Anatomy & Needed Countermeasures."

CHAPTER 2

URBANISATION AND URBAN TRANSPORT

2.01 Modernisation and urbanisation can perhaps be viewed as two faces of the coin of technological advance. With the availability of fast means of transport and extensive communications net works, the economics of scale which can be reaped as a result of agglomeration of economic activities in large urban centres have come to dominate the human settlement scenario.

The Urban Expansion

2.02 From the beginning of this century, till 1981 the urban population grew six-fold, reaching the figure of 160 million and by mid-eighties, it overtook the combined population of U.K., France and W. Germany. The decadal rate of growth of urban population during the seventies (1971-1981) at 46% was nearly twice that of growth of total population of the country at 24%. Similar ratios are expected to obtain in the following two decades. The percentage of urban population in the country rose from 17.97 in 1961 to 19.90 in 1971 and 23.31 in 1981. The trend of steep rise in urban population decade after decade is likely to continue, with an estimated accretion of 70 million persons by 1991, showing a 65% increase over 1981. The urban population of the country at the turn of this century is projected to reach 326 million (Vide Table 2.1) and would then be larger than the total population of any country other than China and U.S.S.R. It is with this explosion of urban population that planners in India have to contend with. It is estimated that by the turn of the century as many as 26 cities will come under the category of one million plus cities as against 8 such cities in 1971 and 12 in 1981. The number of cities with a population of 5 to 10 lakhs will grow from 28 in 1981 (it was only 9 in 1971) to 78 in 2001. Not only that, whereas at present, there is no city in India which has a population of 10 million plus, by the end of this century as many as 5 cities are expected to reach megalopolitan proportion. The cities of Calcutta, Bombay, Delhi, Madras and Bangalore with their 1981 population at 9.17, 8.23, 5.71, 4.28 and 2.91 million respectively come under that category. Bangalore which has the lowest population among these 5 cities has exhibited the highest rate of growth of 6% per annum among all the 12 million-plus cities as per the 1981 census. Calcutta at 2.7% is at the lower end of the spectrum.

2.03 In terms of area as well, the fast pace of urbanisation is unmistakable. Cities and towns in the country occupied 38505 Sq. Kms. in 1961, 43607 Sq. Kms. in 1971 and 53183 Sq. Kms. in 1981, giving a 13.25% increase in urban area of the country in the sixties and 21.96% increases in the seventies[1].

Urbanisation-Inevitable and desirable

2.04 The phenomenal increase in urban population and the burgeoning size of the large cities has drawn a great deal of critical attention, raising demands for policy measures to control, if not reverse, the trend. The very process of urbanisation has often been looked upon as something undesirable. Earlier, the objections used to be on social and moral grounds. Lately, economic grounds have been marshalled to show "the unbearable, avoidable" burden of urbanisation, entailed in providing the requisite infrastructure and civic amenities at rapidly escalating per capita costs.

2.05 This is an issue which can be viewed logically in two ways. First, despite all the objections, the march of urbanisation has not even been retarded, not to speak of its being halted. A certain inevitability about the process is being accepted steadily but surely.

2.06 The other view point looks upon urbanisation as a desirable development, necessary for the benefits of modern technology to be shared widely and to lead to further growth and development of the entire national economy. Cities are not merely the places for a good life for their inhabitants but they are increasingly becoming the centres of advancement and well-being of the large hinterland with which they constantly interact in a symbiotic relationship. The essence of this positive viewpoint towards urbanisation is well-captured in the following quote from a lecture by Prof. Otto H. Koenigsberger, Professor Emeritus of Development Planning, University College, London:

> "The only places where employment has increased visibly and rapidly are the concentrations of industries and trade in and around big cities. The increase of output through the division of labour and specialisation that is characteristic of urban economies throughout the world has shown itself capable of expanding job opportunities faster than long-range projects of rural development."

* * *

> "What we are witnessing is neither a 'drift' nor a 'flood'. The migrants are not 'drifting aimlessly towards the attraction of the city lights', nor are they 'refugees from a sudden disaster who flood into the unfortunate city'. They are self-selected group of men and women at the peak of their working power who have taken a deliberate decision about their own future".

* * *

> "In short, the rural-urban migration is, with rare exceptions, a planned move of a group that represents one of the most valuable human resources of an otherwise poor country".

* * *

2.07 Experience of the developed, industrialised countries shows that the share of urban population in 1975 was as high as three-fourths as compared to less than one-third in the case of the developing countries. (Please see Table 2.2) By 2000 A.D. the percentage of urban population in the case of the former is projected to be as much as 83.6, the comparable figure in the case of developing countries remaining as low as 45.8%. The experience of centrally-planned economies is, no doubt, different. Despite their technological growth and industrial development, the comparable figures in their case are as low as 34.4% in 1975 and a projected 40.2% in 2000 A.D. Thus, though the communist countries were a little ahead of the developing countries in terms of urbanisation as judged from percentage of population living in urban centres, they are projected to lag behind by a significant margin by the turn of the century. Such a situation can be brought about only through tremendous amount of state control on the freedom of movement and residence which the "soft states", whether democratic or otherwise, of the third world are just not capable of enforcing, quite apart from the fact whether such restrictions are considered desirable. There is, thus, a certain inevitability about the process and pace of urbanisation which has to be accepted, and provided for.

City form and Transport Technology Development

2.08 Before the advent of mechanically propelled transport vehicles, the city form in India was dictated by geometrical shapes like, Swastika, Padmaka, Pattana, etc. But, by and large, the city form, as shapped by buses, cars, is that of a strong central core. With concentration of population, more and more activities continued to be located at the core to take the advantage of the excellent transport accessibility and the contiguity with other activities. With the growing demand for space the low income group people in the core are progressively priced out to the fringes of the city. Thus the pattern is that of the fast and high capacity transportation system promoting the concentration of economic activity in central area, residential area receding to the periphery and the resulting longer distances for commutation.

2.09 One of the fallouts of this phenomenon is the most rampant "RIBBON DEVELOPMENT". When people started spilling over to the fringes of the city and when road development did not precede housing, activities were established all along existing arterial systems. There was no law or policy to prevent further intensification of activities along the highways emanating from the city core. The main roads of the cities have grown to function both as major arterials as well access streets. This phenomenon inevitably resulted in enormous increase in traffic and transportation problems. The Indian Roads Congress (IRC) Special Publication 15, 1974 highlights the problems of RIBBON DEVELOPMENT in India and recommends controls over the adjoining development through a Model Highway Bill.

2.10 The radial growth of the cities was a natural and cost effective method for the location of various activities at the initial stages of their development. That was because everyone needed access to the city core in order to reap the advantages which drew various activities and people to the city. But as cities grow, a point is reached when access to the central core becomes so difficult as to make it necessary for other modes to be developed. It has been a matter of deliberate planning by the development authorities to decentralise the economic and the administrative activities in cities so that large urban agglomerations ultimately function as several cities on the periphery of the original core city. This process is one of constant conflict. It is not feasible to create, by command, another city core which can rival the original one. It is as a result of evolution over decades and centuries that city cores come into existence and develop a life of their own. Their components form part of an organic whole and they cannot be detached at will and taken out to be transplanted elsewhere. Yet if the city core is not to deteriorate and degenerate to the point of utter chaos and collapse, not only should it not be loaded further, it should, in fact, be lightened of its burden through decongestion and re-location of activities as far as possible. The urban transport planner has therefore to face the question as to how far the accessibility of the city core should be enhanced through the provision of mass rapid transport without at the same time creating a pull towards it for further accretion of new economic activity.

Transport to shape future Urban Growth

2.11 We have noted the role that advancing transport technologies have played in creating large urban centres. The question arises as to whether transportation planning could not be used to direct the growth of urbanisation along desired spatial direction. It must be admitted that the growth of cities along radials has made the task of urban transport planners difficult. The difference can be seen in the transportation problems of Delhi vis-a-vis those of Bombay, the latter being a city which has grown linearly. Thus while urban transport must meet the needs of the cities as they have grown historically, it should also be pressed into service for guiding the future growth of the cities along the desired lines. The importance of this latter aspect is obvious from the fact that some 100 million more persons have to be accommodated in the cities in the remaining 13 years of the current century. In this context, one of the most pressing objectives of future planning should be to attract the growth of cities along corridors which can be served by rapid mass transportation systems. In other words, a deliberate planning for the cities to grow along a mass transit corridor should be preferred. In order that such an effort does not run counter to the evolutionary growth of the cities to an extent that the two frustrate each other, it would be in order to develop such corridors closely along the directions in which the city growth is already taking place. The laying of transport system in well-chosen corridors will have to be combined with strict enforcement of land use regulations, provision of other infrastructure within the specified areas on both sides of the corridor and capturing of increasing land values along the corridors in the public kitty for meeting the costs of city development including that of transportation. Urban forms having high trip generation along the corridors rather than those leading to sprawled development should be the preferred alternative to be pursued through a close collaboration between town-planners and urban transportation developers.

2.12 Such cooperation and collaboration between authorities responsible for land-use planning and regulation and transportation planners is of immense importance in preventing the urban situation from getting worse. As observed by the National Transport Policy Committee. "The real issue to be tackled from the point of view of urban and land-use planning, including planning for urban transport, is how best to deploy new additions to urban population in new urban areas by providing appropriate opportunities of employment, housing and other civic facilities, so that they do not continue migrating into existing urban conglomerations and thus further worsening the standards of urban life. This calls for forward-looking and imaginative policies on urban and regional development, including a correct approach to land-use planning and industrial location which we, recommend should be followed without loss of time to arrest further deterioration." The two pronged strategy to achieve this would comprise of (a) strict enforcement of land uses calculated to prevent further congestion, encourage de-congestion and re-location and developing newer centres of economic activity at well-selected locales and (b) utilising the potential of urban transport, specially medium capacity and mass transit systems for initiating and directing future urban growth along the derived directions, in an overall regional, rather than city-focussed context.

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1. India—Urban Data Sheet 1986; National Institute of Urban Affairs, New Nelhi.

सत्यमेव जयते

TABLE 2.1

Urbanisation trends in India

S. No.	Year	Population Total	Population Rural	Population Urban	Share of Urban(%)	Decadal Growth Rate (%) Total	Decadal Growth Rate (%) Rural	Decadal Growth Rate (%) Urban
		ACTUAL						
1.	1941	318.5	274.4	44.1	13.86	14.22	11.01	31.97
2.	1951	360.9	298.3	62.4	17.30	13.31	8.79	41.42
3.	1961	439.1	360.1	78.9	17.97	21.64	20.65	26.41
4.	1971	547.9	438.8	109.1	19.90	24.79	21.85	36.21
5.	1981	685.2	525.4	159.7	23.31	25.00	19.73	46.38
		PROJECTION						
6.	1991	837.2	607.1	230.1	27.49	22.18	15.50	44.08
7.	2001	986.1	660.1	326.0	33.06	17.79	8.73	41.74

Sources: Census Reports and Report of Expert Committee on Population Projections, taking medium-level projections.

सत्यमेव जयते

TABLE 2.2

Urbanisation rates and Urban Population Growth, 1950—2000

	Urban Population as percentage of Total Population 1950	1975	2000	Average Annual Percentage Growth of Urban Population 1950—60	1970—80	1990—2000
Developing Countries	20.6	31.1	45.8	4.0	4.0	3.5
Industrialised Countries	62.4	74.4	83.6	2.0	1.2	0.8
Capital Surplus Oil Exporters	16.9	55.5	77.9	7.9	7.1	3.1
Centrally Planned Economies	20.7	34.4	40.2	5.2	2.7	2.4
World	29.0	39.3	51.5	3.5	2.8	2.6

Source: World Development Report 1979 p. 72.

CHAPTER 3

CURRENT URBAN TRANSPORT SCENE IN INDIA

3.01 A broad-brush picture of transport modes and systems currently in use in Indian cities is of relevance at this stage. We have noted earlier the overall situation being one of low status of city transport in the country, giving rise to enormous wastage of scarce resources of human time and effort as also of energy and environment.

Review of systems inoperation in the Indian cities

3.02 (a) Suburban transport referring to the transport for the people living in towns or neighbourhoods at the peripheries of the main cities: this sector meets the requirements of travel from such towns and localities to the city centre and other focal points in the city: and

(b) Intra urban transport, i.e., travel falling broadly within the geographical boundaries covered by the city proper.

3.03 Suburban traffic is characterised by a very high degree of peaking during short periods of the day. Intra urban traffic may also have its peaks, coinciding with the opening and closing hours of administrative and commercial establishments, but it is also marked by the comparatively highlevel of base demand over major part of the day.

Situation in metropolitan cities

3.04 In so far as the four metropolitan cities namely Bombay, Calcutta, Delhi and Madras are concerned, the role of the railways in providing public transport to the people living in the suburbs varies over a wide range from a dominant one in Bombay to an insignificant one in Delhi. Bombay is the only city where the number of passengers carried per day by the railways exceeds that carried by the bus system. In Calcutta, the share of railways is about 1/7th of the total passenger carried by Mass Public Transport (MPT). In Madras also the share of rail transport is of about the same order. In Delhi, the capital city, the share of rail transport at 4% is rather insignificant.

3.05 The suburban traffic in Bombay is handled in two networks operated by Central and Western Railways. On the Central Railway, the suburban section extends upto a distance of 121 Kms. with over 900 suburban trains running every day. During peak period a train leaves every 3 minutes from Bombay V.T. station. On the Western Railway, some 750 or more EMU trains are running every day on the suburban section extending to a distance of 60 Kms. During peak periods a train leaves every 2 minutes from Bombay Churchgate station. The two networks together carry, on an average, over 4.1 million commuters per day.

3.06 In Calcutta, the services are fed by two systems viz. Eastern and South Eastern Railways, serving the east, north, south and south west sections. The two systems between them handle about one million commuters every day. A unique feature of the urban transport scene of Calcutta is the significant role played by the scene of Calcutta is the significant role played by the good old tramways which served 12.30 lakh passengers on each week day in 1985-86. Recently, with the opening of 7.7 km stretch from Esplanade to Tollygunj, being a part of the 16.43 km line from Dum Dum to Tollygunj Calcutta has earned the distinction of becoming the first Indian city to have acquired an underground metro. With an average of 50,000 passengers per day, however, the metro remains greatly underutilised.

3.07 In Madras, the broad-guage commuter rail system is provided on the north-east trunk route from Madras to Gummidipoondi and on the South-West from Madras to Arkonam. There is also a metre guage commuter system extending from Madras Beach to Chingleput (and Kanchipuram). The suburban section extends upto a distance of 68 kms. In all, some 4 lakh commuters are carried over the rail systems every day.

3.08 As regards intra urban movement, buses are the predominant mode of Mass Public Transport (MPT) throughout the country. In Delhi, buses are the backbone of the public transport system; as high as 96% of the trips by MPT are provided by the buses. There too, the conditions of travel are far from satisfactory and the inadequacy of the bus services is reflected by the long queues at the bus stands, long waiting periods and extreme over-crowding in the buses.

3.09 As has been noted in Chapter 1, the conditions of travel on the MPT in all the four metropolitan cities whether by bus or by rail or by trams is highly unsatisfactory. While current levels of modal split in favour of MPT can be raised with great benefit to society, it is a matter of challenge for urban transport planners, indeed for Central and State Governments too, to take steps to improve drastically the functioning of MPT systems in these cities in terms of providing a satisfactory level of frequency mobility and accessibility to the city-dwellers from any one part of the city or its suburbs to any other.

3.10 Intermediate Public Transport (IPT) systems like mini buses, taxis, auto-rickshaws play a significant role in meeting the demand of intra urban motorised vehicular traffic in these cities. Humandrawn vehicles such as cycle rickshaws also play an important role in several cities (including the capital, Delhi) while the role of animal-drawn vehicles has been on the decline. This system mitigates to a degree the problems caused by the inadequacy and inefficiency of MPT services.

3.11 A significant number of trips are also performed by personalised modes of transport like motor cycles/scooters, cars, vans, etc. as well as by walking and cycling. In fact, walking and cycling provide an important mode of travel in the Indian cities under the prevailing conditions. For example, walking on foot accounted for 56% and cycling for 7% of the essential trips in Delhi in 1981. In Madras, about one third of the vehicles entering the central business district, each day, are estimated to be the cycles.

Situation in other million plus cities

3.12 There are at present 8 other million plus cities country viz. Ahmedabad, Bangalore, Hyderabad, Jaipur, Kanpur, Lucknow, Nagpur and Pune. In these cities, buses provide the public transport in varying degrees. While in Ahmedabad, Bangalore and Hyderabad there is some impact of the bus service on the public transport with a fleet size of about 1000, these have little impact in the other cities, the fleet sizes being very small varying from 100 to 300. Intermediate public transport systems, viz., mini buses, 3-wheeled and 4-wheeled vehicles, running on a point to point basis play a dominant role. Ahmedabad, Kanpur and Lucknow provide glaring examples in this regard. In Ahmedabad, over 20,000 auto rickshaws are the major mode of public transport. In Kanpur and Lucknow, apart from a large number of cycle rickshaws, 3-wheeled tempos are the pre-dominant mode of transport. In some case, extension of the inter-city state transport provides services in the urban areas as well. Personalised modes of transport and walking and cycling continue to meet a substantial part of the needs of urban transport in these cities.

Situation in small and medium sized cities

3.13 In small and medium sized cities, cycles, cycle rickshaws, and tongas are the avilable modes of transport with little or no organised public transport.

Necessity of rail based systems

3.14 On the whole, road based transport modes play the most dominant and vital role at present, in meeting the demand of intra-city movement in the Indian cities. It is of significance to observe that in the cities of Delhi, Bangalore and Hyderabad where city rail services are virtually insignificant, the share of mass transport in meeting the total transport demand is of the order of 35 to 50%. On the other hand, in the cities of Bombay, Calcutta and Madras where suburban rail services carry a sizeable volume of urban transport, the share of mass transport in the total passenger trips range between 65 to 80 per cent. The trend would indicate that the introduction of rail-based systems in the cities in order to meet the urban transport demand is essential for boosting the share of public transport in meeting the total transport demand.

Share of public transport and its modal split

3.15 The existing share of public transport in the total trips in the 12 million plus cities and of rail and road based systems in the four metropolitan cities is given in Table 3.1.

Status of financial arrangements

3.16 Rail Services:—Suburban railway services have traditionally grown as a minor limb of the operations of Indian Railways. It is from out of the outlays earmarked for the railways in the successive Five Year Plans that the funds for the constructions of the suburban system are drawn. The operational expenses are met from the overall revenues of railways. Finates provided by the Central Government to Railways for suburban services are subject to dividend payments as applicable to rail operations in general. An exception has, however, been made recently in the case of Calcutta Metro. The funds provided for the project have been made free from the dividend liability by way of a special dispensation. The rail based transportation projects, presently in progress in Bombay and Madras have also been funded from out of the budgeted plan outlays of the Ministry of Railways. These have not, however, been exempted from the dividend liability as in the case of Calcutta Metro.

3.17 The financing arrangements for rail based urban transportation projects, as recapitulated above, suffer from more than one serious drawback. First, since the Ministry of Railways regard the carriage of long distance passengers and goods as their primary function, the demands of urban transport receive a rather low priority in their scheme of things. This is as it should be. The role and responsibilities of the Railways in the smooth running of the wheels of the national economy, in which the carriage of raw materials, intermediate goods and other inputs as well as of finished products and of people from one part of the country to another plays a crucial role, cannot be diluted in any manner by the diversion of its resources, whether human or material, to any other purpose. Secondly, the Railways are in no position to influence the authorities responsible for urban planning to take the requisite complementary measures in terms of land use planning and development which have a tremendous bearing on the generation of urban traffic demand. The railways are confronted with a situation, created by the urban planning authorities, according to their own predictions and perceptions and are then called upon to devise transport mechanism to tackle the suburban traffic problem. The division of responsibility results in lack of integrated planning and leads to costly mistakes. Thirdly, in implementing their projects, the Railway authorities have to depend upon the urban authorities at every stage from land acquisition to the removal of encroachments, to the tackling of several other problems which crop up in the course of civil construction of rail based city transport systems. The present arrangements for planning and development of rail based city transport systems are, thus, far from satisfactory.

3.18 Not only are the railways responsible for planning and construction of rail based systems, they are also called upon to bear the responsibility for operating and maintaining these services. This task again constitutes a a diversion from their primary function for the railways. The existing arrangement is far from satisfactory for more reasons than one. Further, these operations in their very nature are subject to heavy losses which must be borne by the civic authorities rather than the railways. In the year 1985-86, for example, the extent of loss suffered by the railways on account of the rail based city transport services was as high as Rs. 82 crores. Passenger kilometres covered and the loss incurred by the railways in Bombay, Calcutta and Madras are given in the following table:—

Losses on Suburban Rail Services 1985-86

S. No.	Cities	Passenger Kilometres (Millions)	Loss (Rs. crores)
1.	Bombay . . .	31039	..
2.	Calcutta . . .	11937	60
3.	Madras . . .	2436	22
	Total .	45412	82

The loss suffered by the Calcutta Metro Rail on the two part-sections viz. Dum Dum—Elgachia and Esplande-Tollyganj, amounted to Rs. 1.53 crores in 1986-87 without accounted for any capital servicing charges.

3.19 A proposal for the setting up of a Statutory Metro Rail Authority to operate and maintain the Metro line in Calcutta had been mooted. The expertise of the Railways could, no doubt, be utilised for the planning and construction of such systems as agents of a properly constituted authority responsible for overall transport planning in different cities. Details in respect of the possible set-up which could take charge of this responsibility will be examined subsequently in Chapters 7 and 8 relating respectively to the Management and Financing of urban transport in the country.

3.20 **Road-based Transport Systems.**—The bus services in operation in most of the cities fall in the nationalised sector; private operators are also in the field in some cases, most prominent of which is the case of Calcutta. The transport services in the nationalised sector are usually run by the city bus undertakings/corporations. Funds for capital expenditure for these are provided by the State Governments as part of their Plan programmes with matching contribution from the Centre. These undertakings can also resort to open market borrowings under provisions existing in State Road Transport Act, 1950 to meet their capital needs. Life Insurance Corporation of India and Industrial Development Bank of India also provide financial assistance. Plan funds on the above pattern are being provided to Delhi Transport Corporation, Pallavan Transport Corporation (Madars) and Calcutta State Transport Corporation. In case of Bombay, Ahmedabad, Pune as also some other cities, the city services are owned by the local municipal bodies and as such their requirements do not form part of the Plan outlays of the State. In this case, the funding of the capital requirement has to be done by the local bodies only. There is a constraint of funds for expansion of the services because of limited resources of the local bodies. Even in case of services operated by the State Road Transport Corporations where State Governments are supposed to take care of the requirements, provision of funds is made on an ad-hoc basis and it has no relation to the traffic demand of the cities.

3.21 Most of the State Road Transport Undertakings have been incurring losses in respect of city bus operations on account of factors like fares not keeping pace with the ever increasing operational costs, inefficiency in operation, leakage of fare collection, and fare concessions required to be given by the Transport Corporations to different categories of travellers such as students, handicapped persons, etc. The inadequacy of internal resources adversely affects the transport undertakings' capacity to replace buses which have outlived their economic life and acquire new buses for fleet expansion. The salient performance parameters in respect of Delhi, Bombay, Madras and Calcutta for the year 1986-87 are indicated in Table 3.2.

3.22 It is often said that the losses incurred in the operation of city public bus services are due to low levels of fares charged by the bus undertakings which is not adequate to meet the operational cost of providing the service. The data would not, however, appear to indicate so and there is a vast scope for improving the efficiency of these undertakings. As the data reveals, while revenue earned per vehicle-km in case of DTC/Delhi, PTC/Madras and CSTC/Calcutta is by and large of the same order, its percentages to the cost of operation per kilometre works out as 44%, 93% and 41% respectively.

TABLE 3.1

S. No.	City	Share of MPT in total city TPT	Share in MPT of rail-based system	Share in MPT of road-based system
1.	Calcutta	80	14	86
2.	Bombay	80	52	48
3.	Delhi	55	4	96
4.	Madras	65	16	..
5.	Bangalore	47	..	..
6.	Hyderabad	50	..	..
7.	Ahmedabad	50	..	..
8.	Kanpur	39	..	..
9.	Pune	39	..	..
10.	Nagpur	31	..	..
11.	Lucknow	26	..	..
12.	Jaipur	26	..	

Source : Estimation of total road transport freight and passengers movement in India for the year 2000 A.D. Submitted to the Deptt. of Surface Transport. (Roads Wing) by Shri L.R. Kadiyali in 1987.

TABLE 3.2

	DTC Delhi	BEST Bombay*	PTC Madras	CSTC Calcutta
1. Average Fleet Held (ns)	5420	2388	2126	1209
2. Fleet Utilisation (%)	86.1	85.6	88	58
3. Vehicle Utilisation (Kms. per bus per day)	193	206	191	98
4. Staff Deployed per bus	9.7	11.2	8.9	17.5
5. Total Revenue per Vehicle Km. (Paise)	448	586	500	454
6. Total Cost/Vehicle Km. (Paise)	1025	716	539	1117

*Operates Double Decker Buses also.

Source: Transport Research Directorate under the Ministry of Surface Transport.

CHAPTER 4

DEMAND SCENARIO—PRESENT AND FUTURE

4.01 The fast rate at which urban population in the country is growing and the even faster pace at which the metropolitan cities are expanding have been noted. The implications of such rates of growth in city population for urban transportation need to be considered now.

Increase in trips and trip-lengths

4.02 The growth in the number of trips per capita as also in average trip lengths does not bear a 1 : 1 relationship with the growth in city population. The two in fact grow much faster with the result that passenger kilometres to be catered to, increase several fold in comparison with the year to year increase in city population. It is this factor which accounts for the exponential growth in the demand for transport services within the cities.

4.03 In the case of Delhi, for example, walk-trips per capita over a 12 year period from 1969 to 1981 increased from 244 to 696 and vehicular trips over the same period rose from 466 to 722 giving a total trip rate per person per day at 0.71 in 1969 and 1.418 in 1981. Thus, while the population of Delhi over the twelve-year period grew by around 80%, the per capita trip rate per day increased by 100%. Further, alongside the increase in per capita trips per day, the average trip-lengths have also increased fast. In the case of Delhi Transport Corporation which accounted for over half the total vehicular trips, the average trip-length over the 15 years period from 1971 to 1986 increased by over 100%, having risen from 6.2 to 13.5 kilometres. Because of the increasing sprawl of the city and the requirement of people to travel from one corner to the other for work, education, pleasure, social requirements and so on, the frequency as well as the average trip-lengths by other mechanised modes of transport would also have risen similarly, though at varying growth rates. Statistics in respect of per capita trips per day and average trip-lengths in case of selected cities given in Table 4.1 show clearly how both of these grow rapidly with the growing size of the cities.

4.04 It may be noted that the experience in respect of cities in advanced countries indicates that the average trip-lengths in Indian cities are much shorter, about half in most cases. This points to the growth in average trip-lengths which can be expected to come in our cities too in the years to come.

Vehicular Trips

4.05 The growth in vehicular trips arises both from the growth rate in population as well as the rise in per capita trips per day. An idea of the numbers involved can be had from the total vehicular trips in Delhi in 1981 being around 39 lakhs as against 15 lakhs trips in 1969. The modal split of the vehicular trips is an important parameter to be taken into account in transport planning. Table 4.2 represents a comparative picture of modal split in some selected cities of different sizes.

Need for Transportation studies for larger cities

4.06 The travel flow pattern in the major cities of the country has not been studied adequately. What is needed is not only an in-depth enquiry into the origins, destinations, and volumes of traffic flows at different periods of the day in each sector and by each major transport corridor of our larger cities, but also regular and repeated surveys of traffic flows in such sectors and on such corridors over a period of time, thereby yielding comparable time series data for making reasonably accurate projections, at the requisite disaggregated levels of urban travel demand in the future. These studies should be so designed as to throw up extensive data on traffic flows all over the city in order to enable planners to draw city transport models capable of analysing and predicting the impact of proposed transport development measures on the system as a whole, as well as on its components, to a reasonably precise extent.

4.07 The latest effort in this direction is contained in the study carried out by the Central Road Research Institute, New Delhi, under the title "TRAFFIC AND TRANSPORT FLOWS FOR SELECTED CITIES IN INDIA" (April 1986). The purpose of the study was to furnish "a proper data base" for planned development of transportation infrastructure in the concerned cities in an integrated manner so as to ensure that the growing traffic and transportation needs of these cities are met effectively. The study covered the following 14 cities: (figures in bracket give their 1981 population in lakhs):

> Ahmedebad (25.2), Chandigrah (4.2), Coimbatore (9.2), Cuttack (3.3), Guwahati (5.0 in 1986, estimated), Indore (8.3), Jaipur (10.0), Kanpur (16.9), Lucknow (10.1), Ludhiana (6.01), Mangalore (3.1), Moradabad (3.5), Pune (16.9) and Varanasi (7.9).

4.08 One of the criteria for the choice of cities for study is stated to be the lack of existing data base in respect of these cities. The four metropolitan cities, Bangalore, Hyderabad, etc. were excluded as the transportation problems of these cities had already been studied at some length. However, it is only in respect of a few cities namely Bombay and Delhi, that traffic flow data along major roads and at selected screen-lines are available from CRRI studies. The Group is of the considered view that when it comes to detailed planning, either for the short-term or for the long-run, particularly for the latter, the planners require far greater data-base on the volume, composition and direction of traffic flows over time and space than is presently available and for this, very thoroughly designed studies must be commissioned at least for all the million-plus cities and carried out at regular intervals.

Likely overall demand in five largest Indian cities

4.09 A projection into the future of the volume of trips by the year 2001 would indicate the magnitude of the transport demand which would have to be extended to over the available short span of time. The table below presents such projections made by the Group on the basis of projected population and average trip rates and trip lengths for five of our largest cities:

Total Passenger — KMS in 1981 *and* 2001 (*Projected*) *in five largest Indian cities*

S. No.	City	Population 1981 (lakhs)	Pass-Kms PTPD (in lakhs)		Percentage increase
			1981	2001	
1.	Calcutta	91.7	1118	1820	66
2.	Bombay	82.3	1122	2041	82
3.	Delhi	57.1	959	2251	135
4.	Madras	42.8	472	820	74
5.	Bangalore	29.1	184	548	198

As will be seen from the foregoing macro-picture for the five larger cities, on an average, the travel demand is likely to increase to more than double the existing levels over a twenty year span between 1981 and 2001. But for the acute congestion which the cities of Calcutta and Bombay are suffering from, their denizens' travel demand in 1981, the base year as well as the projected one in the year 2001, would have been much higher, as is the position in case of Delhi. Even so, the magnitudes of the projected requirements to be taken care of in the future are clearly staggering. It is possible that with rising incomes the travel demand of city dwellers may grow at a rate faster than that projected here. The cases of fast growing cities such as Delhi, Bangalore, etc. in particular, would have given greater attention and accorded higher priority, if lack of mobility is not allowed to become an obstacle in the way of economic growth and equity in the years to come. The current level of awareness and action do not, to the Working Group, appear to be of commensurate order.

Over-riding Role of MPT

4.10 It is evident that such large traffic volumes cannot be cleared in any way other than by mass public transport. In order that the available transport infrastructure is able to handle maximum volumes of traffic, it would be inescapable that resort to other, less efficient modes of transport, particularly privately owned automobiles and two-wheelers is minimised. The higher the model split in favour of MPT the higher would be the returns to the society from investments in transport infrastructure, including MPT. The current report therefore focusses sharply on policy instruments and other action necessary in the realm of establishing efficient MPT systems.

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TABLE 4.1

Per capita per day trips & trip-lengths in Indian cities of different sizes

S. No.	City	Population 1981 (lakhs)	PCPD trips (1981)	Average trip-length (Km)
1.	Calcutta	91.7	0.96	12.7
2.	Bombay	82.3	1.01	13.5
3.	Delhi	57.1	1.40	13.5
4.	Madras	42.8	0.87	12.7
5.	Bangalore	29.1	0.87	. .
6.	Hyderabad	25.3	0.96 (1985)	6.6
7.	Pune	16.9	0.43	5.5
8.	Jaipur	10.00	. .	3.3
9.	Surat	7.76	. .	3.8
10.	Cochin	5.51	0.39 (1978)	. .
11.	Trivandrum	5.0	0.83 (1977)	. .

Source: Estimation of total road transport freight and passenger movement in India for the year 2000 AD. A report submitted to the Department of Surface Transport (Roads Wing) by Shri L.R. Kadiyali, 1987.

TABLE 4.2

Modal split of vehicular trips in selected cities

S. No.	City	Population	Percentage of total trips by Car & Scooter	Cycle	Bus	Rail	Others
1	2	3	4	5	6	7	8
1.	Delhi	57.1	15	20	55	. .	40
2.	Bombay	82.3	07	. .	39	42	13
3.	Calcutta	91.7	09	NA	78	01	12
4.	Hyderabad	25.3	15	22	35	01	27
5.	Madras	42.8	06	26	53	14	01
6.	Bangalore	29.1	18	16	55	. .	11
7.	Ahmedabad	21.6	12	33	48	04	03
8.	Pune	12.0	25	45	23	. .	07
9.	Baroda	7.3	17	21	36	. .	26
10.	Gurgaon	1.0	17	52	08	. .	23
11.	Visakhapatnam	5.8	09	21	62	. .	08
12.	Rajahmundry	2.2	09	22	03	. .	66
13.	Warangal	3.3	08	23	32	. .	37

Source : Estimation of total road transport freight and Passenger movement in India for the year 2000 A. D. A report submitted to the Department of Surface Transport, Roads Wing by Shri L. R. Kadiyali, 1987.

CHAPTER 5

SHORT-TERM OPTIONS

5.01 The problem of providing efficient transportation to city dwellers can, like any other problem, be looked at in two perspectives—one for the short-term and other for the long-run. In case of large metropolises, the focus is often on long-term solutions, such as construction of express-ways, rapid transit systems, light rail transit, etc. These options are highly capital intensive. They also involve long gestation, because of the necessity to go in for heavy civil construction, not to speak of a number of legal and administrative problems, such as, land acquisition, displacement/re-location of existing activities coming in the way of the project, resistance from affected vested interests and so on, which have the potential of holding up or delaying such large scale transportation projects for unforeseen lengths of time. In consideration of this factor, it would seem logical that long-run solutions should be planned and implemented well in advance of the traffic and transportation situation going out of control. What has been happening, however, is that because of neglect coupled with constraint of resources, the taking up of these projects in all our metropolitan centres have been delayed far beyond the time when they should actually have been started. In fact, in every city including the Capital, in fact, these are still being talked about and in cities where some action has been initiated, the same is confined to tackling only a small part of the larger problem.

Importance of Short-Term Measures

5.02 All this is not to say that long-run solutions are not important. They are. And, they remain inescapable and brook no further delay. The point of immediate interest, however, is that our concern with long-run solutions should not make us lose sight of the potential which short-term solutions hold for easing the transportation bottlenecks in the cities and improving the situation to a considerable extent, with only marginal investments and within a very short span of time.

5.03 The task to be tackled by resort to short-term options is to make more efficient use of highways and transit systems already in place so as to move more people and more goods, not just more vehicles. Action to expedite the movement of vehicles on the existing space by unclogging them through removal of encroachments and other obstacles, and by adopting engineering and management measures which offer lower cost solutions, needs to be taken. Policies calculated to encourage the utilisation of available transport space by high capacity, non-polluting vehicles need to be adopted. The typical peak hour traffic ought to be re-distributed over longer time spans by suitable work re-scheduling, pricing and other policies. Public transport services need to be improved by imparting greater transit efficiency to the system through appropriate measures including coordinated functioning of various components as parts of an integrated and optimal operation. All feasible measures should be taken to make public transport more attractive, convenient and safe so as to discourage and cut down the use of low occupancy, high-hazard, high-cost and environment-polluting personal modes of transport.

Transportation system management

5.04 Transportation System Management (TSM) has, in the recent years, emerged as a major instrument of optimising the service for existing transportation infrastructure in the short-run. The TSM measures operate through (i) improving vehicular flow, (ii) according preferential treatment to high occupancy vehicles (HOVs), (iii) reducing peak period travel demand, (iv) regulating parking of vehicles, (v) promoting high occupancy of motor cars or restricting motor-car use in selected areas, (vi) improving transit and para-transit services and (vii) raising the efficiency of transit system for increased ridership.

TSM Techniques

5.05 The Transportation System Management (TSM) techniques that have been employed successfully in different parts of the world are presented in a summary form in the Table 5.1.

TSM in action

5.06 The French example of TSM is worth taking note of. In 1971, the Central Government in France set up the TSM procedure with the objectives of finding the best possible use of the existing network; it included protection of pedestrians, improvement in public transportation and organised car parking. Safety and fluidity were the mottos. In 1981, TSM objectives were enlarged to cover improvement of the urban environment, energy conservation and improvement in the living conditions in the suburbs.

5.07 Reduced to specifics, these extended to various traffic engineering methods, such as reservation of lanes for cycles, better street lighting, one-way traffic, diversion of traffic to reduce noise, etc. Solutions were evolved on the basis of studies conducted at three levels: urban area, neighbourhood and street level. Such studies were carried out by the municipalities but were subsidised by the provincial governments, initially to the extent of 66% and later, 50%. All cities over 20,000 population taking up a TSM project were eligible to receive these subsidies. The impact of adopting TSM in the cities was encouraging. In the case of one town, Lyons, over a five year period 76 inter-sections were redesigned, 265 kms of streets made one-way and 33.5 kms of counter-flow exclusive bus lanes established. The Railway Reforms Committee, after outlining the broad features of application of TSM in France underlined "the necessity for crystallisation of a political will before such schemes can be implemented" and concluded that "in our country there is plenty to be learnt both in the concept of TSM, manner of its introduction and its implementation".

5.08 Similarly, the Urban Mass Transportation Administration (UMTA) and the Federal Highway Administration (FHWA) in the U.S.A. actively promote TSM measures by Urban Authorities. The inclusion of TSM projects in Transportation Improvement Programmes (TIP) has been made an essential requirement for UMTA approvals for all urbanised areas with population over 200,000. This underlines a growing consensus that steeply rising costs, environmental concerns and intense competition for available resources make it imperative to derive optimum benefits from existing investments in transportation infrastructure before committing additional investment in costly new facilities. The benefits flowing from the introduction of a wide spectrum of TSM measures in USA are well documented.

5.09 Nearer home, the experience of employing TSM measures in Hyderabad city in the year 1983 have proved to be very rewarding. The city has a typical mixed mode travel environment which prevails not only on the old roads but also on the road systems laid out in recent times. Hyderabad Urban Development Authority (HUDA) in association with Municipal Corporation of Hyderabad initiated the following package of TSM actions for improving the vehicular flow on road network and raising transit efficiency:—

1.	Intersection channelisation to improve flow, and reduce conflicts.	27 junctions
2.	Traffic signalisation at all the unsignalised junctions that warrant them.	50 junctions
3.	Bus stop rationalisation in Municipal area by special bays, and marking.	250 locations
4.	Parking stall demarcation with signs and marking with emphasis on Bicycle parking.	3 Business districts
5.	Goods Traffic Parking regulations, parking on outskirts of the city by opening off-street parking areas.	3 Mini Truck Parking lots
6.	Introduction of one way streets to reduce congestion and conflicts.	3 places
7.	Removal of bottlenecks on corridors.	2 corridors
8.	Widening of bottlenecks areas at narrow areas and at Railway terminals.	12 places
9.	Improvement of riding quality of roads by hot premix carpets.	on major roads
10.	Augmenting the Bus fleet by 100 additional buses per year.	

The total cost of implementing the above package of TSM measures, spread over a period of 4 years, was only Rs. 10 crores and its tremendous impact can be judged from the fact of reduction in road accidents from 1024 in 1978 to 735 in 1983 and increase in journey speeds by 5 kmph.

5.10 The example of Madras Metropolitan Development Authority in commissioning a Traffic and Transport Study focussed on short-term Improvement Programme is worth a mention here. The study was completed within 18 months and has recommended a modest package costing Rs. 54.9 crores to be spent over a 5 year period, 1986-91. These include construction of new road links, improvements through TSM measures, removal of bottlenecks at road-rail crossings and narrow bridges, improvement and augmentation of facilities for pedestrian and bicycle movement, better parking through regulation and strengthening of facilities, measures for 8 outer urban areas. The study also recommends a set of priority-II projects to be implemented subject to availability of resources, at a cost of Rs. 47.9 crores.

Lines of action for Indian cities

5.11 Lines of action, particularly suitable for adoption in Indian cities are suggested below:—

(i) Improve vehicular flow on existing road system through traffic engineering techniques involving low cost solutions. They may include channelisation, signalisation, parking control, bus stop locations, one way and reversible streets, pedestrian treatment, etc.;

(ii) Treat High Occupancy Vehicles in a preferential manner to increase ridership. The action could be through preferential treatment on available facilities, or through favourable fiscal and pricing policies;

(iii) Depress the peak period travel through work rescheduling, congestion, pricing, truck restriction, etc.;

(iv) Promote non-auto modes like bicycles and pedestrians through bikeways, park-and-ride for personal vehicle owners, pedestrian grade separation, barriers, etc.;

(v) Adopt restraint measures to discourage the use of vehicles through controls, like auto restricted zones, parking restrictions, commercial vehicle prohibitions, pricing, etc.;

(vi) Improve transit and para-transit services through shelters and terminals, fare policies, integrating with a para transit services, etc.; and

(vii) Improve transit management through route evaluation, vehicle monitoring, maintenance, evaluation of system, etc.

TSM should be integral to transport planning

5.12 At the moment, application of TSM is left to individual bodies like Police, Road Transport Authorities, State Road Transport Corporations, Municipalities, Urban Development Authorities, etc. Such action should proceed on the basis of thorough studies at the three levels mentioned in the case of the French experience. The necessity of developing an overall plan of action within which the micro components would fit in a harmonious manner cannot be over-stressed. With increasing constrains, dovetailing and combining of different parts of the city transport system so as to achieve an optimum throughput of traffic with the existing facilities becomes imperative. Together with this, the construction of selected new roadway segments and incentives to increase the use of high occupancy vehicles can go a long way in mitigating the hardships of city commuters with only marginal outlays and without having to wait too long.

5.13 In order that TSM actions receive the attention and priority that they deserve, it should be made obligatory on the part of the city authorities to include a comprehensive TSM in their proposals for capital investments in urban transport. In other words, it must be ensured that the potential of TSM is explored to the maximum and exploited to the full before other costlier measures requiring longer gestation are sanctioned.

5.14 Since the cost benefit ratio of TSM is highly advantageous, its promotion requires to be pursued persistently by the government. The Central and State Governments must initiate policies aimed at motivating the City Corporations and Development Authorities to adopt TSM measures in a thorough and systematic manner. Their efforts in this field should be rewarded through Government grants and other inducements. Since a number of authorities are concerned with the different aspects of TSM, it would be necessary to set up an organisational structure, capable of ringing about the requisite coordination in the planning and implementation of TSM action of city-wide basis.

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[2] TSM State of the Art, February 1977, NTIS, USA.

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TABLE 5.1

Classes of TSM actions

Class	Strategy group	Action
Traffic Management aimed at improving vehicle movements by increasing the capacity and safety of the existing facilities and systems.	Traffic operotions	(i) Intersection and roadway widening.
		(ii) One-way streets.
		(iii) Turn lane installation.
		(iv) Turning movement and land use restrictions.
	Traffic Control	(i) Local intersection signal improvement.
		(ii) Arterial signal system.
		(iii) Area signal system.
		(iv) Freeway diversion and advisory signalling.
		(v) Freeway surveillance and control.
	Roadway Assignment	(i) Exclusive bus lanes.
		(ii) Bus—only street.
		(iii) Contraflow bus lane.
		(iv) Reversible lane systems.
		(v) Freeway HOV bypass.
		(vi) Exclusive HOV lane-freeway.
		(vii) Take-a-lane, Add-a-lane.
	Pedestrian and Bicycle	(i) Widen side walks.
		(ii) Pedestrian grade separation.
		(iii) Bikeways.
		(iv) Bike-storage.
		(v) Pedestrian control barriers.
Transit Management designed to increase ridership by providing expanded and more efficient public transportation.	Transit Operations	(i) Bus route and schedule modifications.
		(ii) Express bus service.
		(iii) Bus traffic signal preemption.
		(iv) Bus terminals.
	Transit Management.	(i) Simplified fare collection.
		(ii) Maintenance improvements.
		(iii) Vehicle fleet improvements.
		(iv) Operations Monitoring programme.
	Inter-Modal Coordination.	(i) Park-n-ride facilities.
		(ii) Transfer improvements.
Demand Management oriented toward reducing trips or number of vehicles by encouraging other types of transport services.	Paratransit	(i) Carpool matching programme.
		(ii) Vanpool programme.
		(iii) Taxi/group riding programme.
		(iv) Dial-a-ride.
		(v) Jitney service.
		(vi) Elderly and handicapped service.
	Work schedule.	(i) Staggered work hours and flexi-time.
		(ii) Reduced week days.
Restraint Measures aimed at discouraging vehicle use mostly through restrictive controls.	Parking Management.	(i) Curb parking restrictions.
		(ii) Residential parking control.
		(iii) Off-street parking. restrictions
		(iv) HOV preferential parking.
		(v) Parking rate changes.
	Commercial Vehicle	(i) On-street loading zones.
		(ii) Off-street loading zones.
		(iii) Peak hour-on-street loading prohibition.
		(iv) Truck route system.
	Pricing	(i) Peak hour tolls.
		(ii) Low-occupancy vehicle tolls.
		(iii) Gasoline tax.
		(iv) Peak/off-peak transit fares.
		(v) Elderly and handicapped fares.
		(vi) Reduce transit fares.

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CHAPTER 6

LONG-TERM OPTIONS

6.01 The rapid pace at which our cities are growing and the even faster pace at which demand for urban transport is shooting up underlines the need for planning and development of urban transport in a long-term perspective. It is apparent that if such planning is dominated by the requirements of today and tomorrow alone, the solutions that are arrived at to meet the needs can lead to a situation where the infrastructure created may become totally unequal to the task of moving the large volumes of traffic at the end of a decade or so. In fact, such a situation has already arisen in our large cities where it is now considered inescapable that huge investments, almost beyond the capacity of the society to mobilise, must be made in underground metros. Examples of more affluent countries are often cited in this regard to stress that this is nothing unusual but must be accepted as the outcome of a natural growth process. But, when the poverty of the masses and acute shortage of resources stare the planners in the face, one is led to wonder whether effective advance action over the preceding decade could not have averted such acute transport chaos in the metropolises. The short-term options should be examined and adopted keeping in view the long-term perspective, so that the former are employed to give immediate relief at lower costs without jeopardising the feasibility of going in for cost effective long-term options. It must be emphasised here even at the cost of repetition, that the options to be considered are not merely those relating to transportation but include those pertaining to the entire gamut of city planning extending to enforcement of well-designed land-use, de-congestion, re-location and so on.

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Pertinent Considerations

6.02 In considering long-term options in the area of urban transport, the aspects which would have to be kept in view are that:—

(a) the future demographic profile of the city as also of its immediate environs over a 20 to 25 years of time horizon;

(b) the pattern of the economic, commercial and other activities likely to evolve and to be developed in different parts of the city; the mutual interaction of different sectors amongst themselves as also with the core city and the resulting transport demand for passengers as well as goods traffic;

(c) income and activity profile of population likely to reside in different areas (this aspect can also be regulated to some extent through deliberate planning by the development authority);

(d) likely proliferation of various modes of transport and the demand they would place on the city transport infrastructure with different levels of modal split by MPT; and

(e) various technological options available or likely to be available over the planning span.

6.03 Of the five considerations listed above, the first four would have to be viewed in the context of the situation as it obtains and is projected for the future in each of the cities to be taken up for long-term city transport planning. In the overall context, what is relevant to be examined in some detail is the spectrum of long-term options available to planners alongwith their suitability, merits and demerits in different real life situations. As has been emphasized earlier in para 4.10, the only feasible approach to handling the huge volumes of commuter traffic in our cities is to go whole hog for MPT systems. Such systems are broadly divided between road based and rail based ones. Recently, with the advent of magnetic levitation technology (yet to be proved commercially), a third category which stands in its own class, has also made a claim to our attention. The technological options available for mass public transportation in the cities can therefore be considered in the following sequence :

A. Road Based Systems comprising—
   (i) Standard Bus
   (ii) Urban Bus
   (iii) Double Decker Bus
   (iv) Electric Trolly Bus

B. Rail Based Systems comprising—
   (i) Tramways
   (ii) Surface Railway
   (iii) Heavy Elevated Railway
   (iv) Underground Metro Railway
   (v) Light Rail Transit (LRT)

C. Magnetic Levitation System

I. OVERVIEW OF TECHNOLOGICAL OPTIONS

A. Road based systems

(i) Standard Bus

6.04 This is the predominant mode of trnasport presently in use in the country for city as well as intercity transport. This has flexibility of operation and maintenance is simple. With a crush load of about 80 passengers, the bus provides for a system capacity of the order of 9000 persons per hour per lane. However, the bus as in use mounted on a truck chassis, is not very suitable for city transport due to following inherent shortcomings:—

(a) higher floor height making it difficult for the people to get in and get out of the bus;

(b) heavier body leading to higher energy consumption;

(c) the bus is designed for higher cruising speed not suitable for city transport, again resulting in higher energy consumption; and

(d) poor driver ergonomics.

(ii) Urban Bus

6.05 This refers to a new vehicle specifically designed for city transport with a streamlined look incorporating the following technological improvements:—

(a) lower floor height for easy and comfortable boarding and alighting;

(b) wide doors;

(c) lighter body;

(d) better driver ergonomics including power steering;

(e) efficient engine capable of developing tarque at lower rpm to give economic fuel consumption at lower speeds of about 40 kmph.

With appropriate lay out and crush load of 90 to 100, the urban bus can provide a system capacity of about 12,000 pph per lane.

(iii) Double decker bus

6.06 This is a shorter and higher bus with a crush load of 120. The double decker bus can provide a system capacity of the order of 12,000 pph per lane. However, it is considered a slower system due to lower power to weight ratio and longer stoppage times for boarding and alighting. It is not considered a convenient or attractive choice for city transport.

(iv) Electric trolley bus

6.07 This refers to the bus similar to diesel bus but specifically designed for urban transport and running on electric traction, deriving its power from overhead wires. The trolley bus has higher capacity, higher acceleration, higher reliability and lower maintenance cost as compared to a standard bus. Its biggest attraction is that it uses electricity for traction thereby conserving precious oil resources. Also, the trolley bus being electricity based system, causes no pollution. But electric trolley bus has also certain limitations as under:—

(a) The system is not flexible enough; as being tied to overhead wires for power supply it cannot adopt to changes in route;

(b) there is lack of manoeuvrability as it cannot overtake the vehicle ahead, leading to bunching;

(c) the trolley bus should run in the centre of the road as side lanes usually get occupied by slow moving/parked vehicles. But in that case it would need provision of special bus stops and also, there is a problem of people getting to and from the pavement; and

(d) the system cannot maintain high frequency and also the system affects the aesthetics of the city.

6.08 It is not a significantly advantageous mode vis-a-vis diesel bus in respect of overall speed and capacity. The system capacity is of the order of 16.20 thousands passengers per hour per direction (pphpd). Electronic trolley bus is not considered an appropriate and ideal arrangement for city transport under prevalent conditions.

B. Rail based systems

6.09 The range of rail operations relevant to urban transport can be divided into different groups as under:—

(i) Tramways

6.10 It is a single car or two articulated cars, similar to trolley bus running on steel rails but sharing roads and road signals. In India, the trams are in use at present in Calcutta only. The system lacks manoeuvrability. Operation is limited to single lane and the same should usually be the centre of the road. However, this creates the problem of providing special steps in the centre of the road and difficulty for the passengers to get to and from the pavement. The trams cannot maintain high frequency and system capacity is low, being of the order of 5000 to 6000 pphpd. In view of the above factors, it is not considered as a suitable mode for metropolitan cities where the passenger demand level is high and there is heavy congestion on the roads. However, considering that the trams work on electricity and cause no pollution it is considered that they have a role to play in the medium cities with not very high passenger demand and low levels of congestion on the roads.

(ii) Surface Railways

6.11 A heavy rail system having its genesis in main line railway operations, this refers to suburban EMUs (Electrical Multiple Units) owned and operated by National Railways, which also run long distance railway services. The EMU services can be seen in operation in four metropolitan cities of Bombay, Madras, Calcutta and Delhi. The EMUs share main line operations and use existing right of way of the Railways. Certain operational & technical features put these EMUs in a different group vis-a-vis undergorund heavy rail metro system. These are track at grade, relatively wide station spacings, usually heavy rolling stock, and electric power derived from overhead wires.

6.12 Often there is conflict between pressure of main line operation, and demands of an urban transport system, requiring high capacities and high frequency of services. Hence, it is best to segregate the main line and suburban line rail operatios and provide a dedicated separate network for the city/suburban traffic before the system reaches to the point of overloading.

6.13 The EMU services can provide a high capacity mode as part of overall city's transport network. The system can provide capacity as high as 80,000 to 90,000 pphpd by operating the services at very close headway of 2 metres or so. To operate the service at such close headways, it would be necessary to have a dedicated corridor free from all interferences.

6.14 The EMU Surface Railway, however, cannot be the main city transport system unless the city happens to grow along its alignment. Also, it is not favourable to provide the system through the heart of the city, where a railway line creates a sort of physical barrier for the city inhabitants by dividing the city into two sides. Further, in any case it will virtually not be feasible to provide surface EMU corridors in the city centres in the growing metropolitan cities as land is just not available for the same.

(iii) Underground Metro Railways

6.15 The underground metro rail systems are the main stay of high capacity systems all over the world. These can move large number of people at high speeds with very low land use. There is no surface disruption except during construction period. The coaches used are comparatively lighter, shorter and sleek looking.

6.16 However, the underground metro systems are very expensive to build. Also, the construction time is long. Further there is a heavy disruption of the city life and interference with the public utilities like water supply, sewerage, power and tele-communication cables, etc. during the construction period, which need to be relocated, if the cut and cover, method of construction is adopted on the basis of cost considerations. The alternative to avoid disruption to city life shifting of utilities is to resort to the tunnelling method of construction in lieu of 'cut and cover' method. But, that will increase the cost of construction further.

6.17 In this country, the first underground metro system is under construction in Calcutta where the cost of construction is of the order of Rs. 55 crores per km. at current prices. The 16.5 km. line is divided between an elevated section of 1.0 km., a tunnelled portion of 1.1 km. and the remaining 14.4 km. i.e. the bulk of the line having been constructed by adopting the 'cut and cover' method. The difference in cost of construction under two methods viz. 'cut and cover' and 'tunnelling' could be quite high, varying in the ratio of 1:3, in case of open route not involving shifting of utilities and with wide road surface area, thereby permitting blocking of portion of the same for construction without affecting the movement of road traffic. However, as the experience of Calcutta Metro shows, in case of a busy artery involving heavy relocation of utilities, provision of road decking to maintain the movement of road traffic because of inadequate road area, and use of, diaphragm wall for 'cut and cover' construction, the difference in construction cost is only in the ratio 1:1:5.

6.18 The underground metro system can provide system capacity as high as 80,000 pphpd. The underground metro system costs ten times as much as the surface system.

(iv) Heavy Elevated Railway

6.19 Heavy rail EMU mode has also been attempted on elevated right of way. In India itself, the work is in progress in Madras on 8.5 km. The RTS line from Madras Beach to Luz where EMU operation on elevated right of way is contemplated. It comprises 5.5 km. of elevated and 3 km. of surface route with an estimated capital cost of Rs. 105 crores. However, an elevated heavy rail system is not considered an attractive choice as EMU systems, especially in the elevated mode, are very noisy (100 DB at 15 metres). They require heavy and wide guideways. Also, it is difficult to fit the system into the contours of the existing city geometrics.

(v) Light Rail Transit (LRT)

6.20 The Light Rail Transit system was developed in Europe in mid 50's as a synthesis between a conventional tram car and a modern metro to live a low cost system with capacity range of 10,000 to 45,000 pphpd. The development was prompted due to very high cost of construction for underground metros which was becoming out of the reach for most of the nations. The system involves operation of smaller trains of light weight vehicles with an axle load of 8 to 10 tons only, which predominantly use segregated, but not necessarily exclusive track. The LRT system is a concept that utilises modern electric rail vehicles and bridges the demand gap between the system capacity of buses and the level of traffic that justifies the high cost of mass transit underground metro system. The sailent features of the system are as under:—

(a) The key feature of the system is the 2-section 6-axle or 3-section 8-axle articulated vehicle which can be operated in multiple units. Because of articulation, the LRV is capable of negotiating very sharp curves, as low as 50 metre radii surves (in depot). The gradability is as high as 7%;

(b) it is a very flexible system capable of being upgraded step by step according to the demand levels;

(c) the LRT vehicles vary considerably in appearance. The 2-section vehicle in usually 20-30 metres long, while a 3-section LRV is generally 25 to 35 metres long;

(d) the width varies between 2.3—2.7 metres. The passenger capacity of the light rail vehicles varies from 135 to 230 with 6 standing passengers per sq. metre. With the crush load the capacity can go up to 300. Further, the LRV can have movable and foldable stair and door designs to suit the requirements of low level platforms on the street;

(e) being an electricity based system it does not cause any pollution;

(f) the system usually operates on direct current at 600-750 V. Like modern metro cars the LRVs now use modern methods of traction motor control like chopper control (in case of DC motors), variable voltage and variable frequency control system with 3-phase AC induction motors, to overcome the losses associated with accelerating registers in the earlier designs. The vehicles also provide the facility for regenerative braking to recover between 15% to 20% of the overall energy consumption;

(g) it is possible, with adoption of suitable measures to contain the noise level for LRT to the order of 65 DB or so;

(h) the system needs lighter guideways and structures in the elevated mode because of light weight vehicles. The operating cost is also lower because of lower specific energy consumption due to the same reason;

(i) the LRT can use at grade, above grade or below grade track. It can have different kinds of right of ways that is shared or separate or an exclusive right of way with or without grade separation for a portion of the alignment. Depending upon the mix of the right of way/extent of grade separation, the system crush load capacity can vary from 10,000 to 50,000 passengers per hour per direction, with operating speed ranging from 20 to 38 kmph;

(j) the track will have to be equipped with advance train protection system in case of exclusive right of way (ROW) operation from the point of view of safety and reliability. As per the experience so far, minimum headway of 90 secs. is achievable with exclusive right of way and requisite grade separation. It is possible to reduce the headway further with driverless (automatic) operation;

(k) maximum number of cars per train used in case of exclusive right of operation are 4;

(l) as a rough estimate, neglecting the effect of gradients, significant energy consumption of a modern LRV has been reported to be in the range of 3 to 6 KWH per vehicle km. depending upon whether the vehicles are operated with or without coasting and/or regenerative braking.

6.21 Advanced versions of LRT system have also been developed incorporating linear induction motors for further reduced tare weight of the coaches and to have acceleration/braking independent of rail wheel contact. Improvements also include steerable axles to reduce the noise levels and rail wear.

6.22 It may be mentioned that a LRT system is a low cost system compared to expensive underground metro system only if it has a mix of separate/exclusive and grade separated exclusive right of ways. In case of a fully grade separated exclusive right of way (ROW) alignment, whether underground or elevated, the cost difference vis-a-vis the corresponding conventional elevated or underground metro system is not significant.

6.23 Today, the LRT systems are operated in a number of cities in the world. The technology is proven. The system has great potential as a medium capacity rapid transit system for the Indian cities. However, under Indian conditions of heavy demand and congestion on the roads, no shared right of way of operation can be conceived of. It will have to be a separate/exclusive right of way with a good degree of grade separation.

C. Magnetic levitation systems

6.24 The magnetic levitation technique is a new mode of locomotion and is also called 'riding without wheels'. In this system, known as M-Bahn, developed in Federal Republic of Germany for urban transport, the vehicle is levitated over the track with the help of permanent magnets made of rare earth materials which are fixed under the coach vehicle. The propulsion of the vehicle is achieved by a travelling magnetic field created by linear induction motor with its winding placed in the track. The technology is very promising and the system has a number of attractive features as under:—

(a) As the system uses permanent magnets to levitate the vehicle and interact with the motor windings of the linear motor, no energy is required for levitation. Energy is required for propulsion only. There is elimination of friction between wheel and rail. Also, the movement of system is quieter with low noise (55 DB at 25 metres);

(b) because of absence of motors, bogies and wheels and other control gears, the vehicles are very light, thereby permitting lighter guideway structures, which can be made from steel or prestressed concrete with an aesthetically pleasing appearance. Civil engineering construction costs are claimed to be about 25% lower than that for the LRT system;

(c) the system has excellent riding quality. Right of way use is absolutely minimum;

(d) operation is fully automatic;

(e) degree of safety is very high as no derailments are possible;

(f) the system can be said to have the best achievable pay load/tare weight ratio. It has excellent gradability;

(g) substantial reduction in the operation and maintenance cost vis-a-vis the LRT system because of levitation, thereby eliminating friction, fully automatic operation and lower propulsion energy requirement due to lighter coaches. A saving of about 40% is claimed. Specific energy consumption is reported to be of the order of 42 watts per hour per ton km. without regenerative braking. However, the following points need to be taken into consideration before deciding about the adoption of this technology in the country;

(h) the power supply system and associated switching arrangement is quite complicated. Further, guide rails and wheels are required for the system which make the suspension and the track complicated;

(i) the design of track power supply system and associated switching arrangement have a bearing on the rake composition proposed to be operated. It is not possible to have any extension of the rake composition after the system is designed and installed for a particular rake length without major modifications and investments;

(j) the system is not yet proven anywhere in commercial operation. Magnetic levitation system has been installed on a 1.6 km. long section in Berlin but only experimental runs are going on since May 1987. In absence of any actual commercial operation, it is difficult to accept on face value the economics in regard to operation and maintenance costs; and

(k) the system so far operating on experimental basis is for capacity in the range of 2000-5000 pphpd. It would appear possible to upgrade the system to a capacity range of 25 to 30 thousand pphpd without much design changes. Beyond this level, the system may need design changes. However, this falls below the traffic requirement of this country. Also, in absence of any field operating experience, it is difficult to assess as to how this system is going to behave under climatic and heavy traffic conditions with the problem of over-crowding prevalent in this country.

II. System performance parameters

6.25 The salient system performance parameters for various bus modes and rail-based modes are indicated in Tables 6.1 & 6.2 respectively.

III. Some technological aspects relating to rail based systems

(a) The Gauge

6.26 The choice of the gauge for new dedicated urban transport rail network in the country is often debated. The existing track in India is predominantly broad gauge, followed by the metre gauge (30%). The question of the choice about the gauge to be adopted is a complex one. It is argued that a different gauge for future dedicated urban transport network should be adopted on the ground of avoiding any possible interference between urban and main line operations. Also, adoption of a different gauge will not involve redesign of the LRT coaches, which operate in Europe and elsewhere mainly on the standard gauge in use there, in the event of adoption of the system for India. However, we are of the view that for India, broad gauge should continue to be the choice for future dedicated urban transport networks because of the ease of transportation from the production unit to the place of use. However, in case of cities, metre guage may be more appropriate.

6.27 Operation of any high capacity system at close frequencies in any case need full utilisation of the track for urban system. Also, the power supply system for such transportation systems, whether underground metro or LRT systems, is different (low voltage DC). These factors will not make it possible for any interference between urban and main line operations.

(b) Automation

6.28 The staff costs account for 40% or more of the operating costs of any transportation system. To reduce the staff costs with a view to bringing down the recurring operating costs, automation should be seriously considered in different areas. It is suggested in this regard to go in for automatic train operation systems (driverless control) and automatic train control and automatic train supervision through computers in central controls. in the case of dedicated high capacity rail systems on the following considerations:—

(i) To have reduced headway lesser than 1½ minutes for increased throughput. Increased frequency also makes it possible to go in for shorter rakes thereby necessitating short platforms;

(ii) substantial saving in energy vis-a-vis driver operation by way of optimised driving;

(iii) greater safety. With automatic operation and automatic train protection systems, train collisions are virtually eliminated, leading to economies in coach design as lesser crash buffing load can be acceptable.

(c) Rubber tyres versus steel tyres

6.29 Several cities in the world have gone in for rubber tyres for the vehicles for their rapid transit system for support and guidance instead of the conventional steel wheels. The rubber tyres have been adopted on the considerations of increased operating speed through better adhesion to achieve higher acceleration/de-acceleration, reduced noise (55 to 60 DB), lighter and lower cost of coaches. However, there are a number of limitation and disadvantages with use of rubber tyres as under:—

(i) Use of rubber tyres need guide rails and wheels, which complicate the suspension;

(ii) higher maintenance costs;

(iii) considerably higher energy consumption vis-a-vis conventional steel wheel vehicles on account of higher friction and increased rolling resistance of the rubber tyres. Published data indicate a differential of 25% to 33% in this regard. The rubber tyre wheels also have greater number of contact surfaces and greater rotational inertia;

(iv) excessive heat produced by the rubber tyres due to higher rolling resistance leading to installation of larger ventilation systems and consequent operating costs in metro tube; and

(v) the rubber tyre wheels also pose a fire hazard because of large amount of inflammable material.

(d) Coach Body

6.30 Presently, corton steel is being used for manufacture of the body of rail coaches in India. The coaches are heavier. The trend world over is now to use stainless steel/Aluminium for the coach body, especially for the vehicles for urban transport systems, to have lighter coaches which reduce energy consumption and the resultant operating costs. Energy savings to the extent of 7%—8% may be expected by use of stainless steel. Future coaches for urban transportation system in India should, therefore, be made of stainless steel/Aluminium with long lasting maintenance free finish.

(e) Traction

6.31 Future coaches for urban transport should use latest variable voltage variable frequency controlled 3 phases AC induction motors for traction on considerations of light weight compact motors, savings in energy during powering as well as braking, lower heat generation in metro tunnels with consequent reduction in air conditioning loads, and easy maintenance.

IV. Right of way consideration

6.32 To achieve high corridor capacities and high running speeds it is essential to separate the public transport right of way from all other traffic including pedestrains. The spacing of the stops is also very important, if overall travel speeds are to be high. Thus, underground metro systems running on fully separated right of way are able to move a large volume of passengers in a high density corridor. It is also possible to provide special rights of way in the form of bus ways or reserved bus lanes on the roads to increase the running speeds and throughput of the buses. This approach has been tried in a number of cities like New York, Saopaulo, and Bangkok.

(a) Exclusive bus lanes

6.33 Exclusive bus lanes are not considered a feasible proposition for cities in India on considerations of inadequate road area, presence of slow moving traffic, general haphazardness of the traffic, and problem at intersection where vehicles will need to turn across other streams of traffic.

(b) Exclusive elevated bus ways

6.34 However, exclusive right of way for buses in the form of elevated bus-ways are considered an attractive proposition to increase the throughput and running speeds of the buses in the congested areas of the city, where the road capacity is no longer adequate and traffic speeds are low leading to higher fuel consumption, pollution, and journey times. Provision of such bus-ways can improve the mobility on a number of routes as buses of different routes can make use of the same by providing exit and entry ramps at suitable locations. It may be adequate to provide exclusive bus-ways to the extent of only 30 to 40 per cent of the network. Stops will have to be provided in such a way that the bus is pulled to one side of the road with a platform creating a bulge in the guide-way. The buses with exclusive bus-ways are reported to be able to meet demands in the range of 25 to 30 thousand pphpd. Such exclusive bus-ways can be considered only if wide roads are available to accommodate ramps and demand is going to stay in the above region in the foreseeable future.

6.35 The Study Group on alternative systems of urban transport constituted by the Government, has suggested construction of elevated bus-ways in the first instance to cater to the demand level in the range of 15000 to 25000 pphpd and then conversion of the same bus-ways into rail borne rapid transit system in due course, as the demand starts exceeding the system capacity of the bus modes. However, it is considered that it may not be easy to lay the track and the associated infrastructure for conversion of the bus-ways to rail borne high capacity system without disrupting the traffic movement. The process is bound to cost much more in overall terms. It is considered more pragmatic to straightaway plan for grade separated rail borne systems, as and when the demand on any corridor cannot be met by bus modes. The throughput on the rail corridor can be increased in phases either by increasing the number of coaches or by increasing the frequency of services in accordance with the demand growth.

(c) Exclusive right of way for rail mode systems

6.36 The exclusive right of way on the surface is obviously cheaper and will have to be preferred, if space is available. However, if high frequency services are contemplated, it would be desirable to provide appropriate fencing. Also, a road over the bridge will need to be provided at the intersections. Surface corridors are recommended only for the fringe/outer areas and suburbans.

6.37 The Study Group on alternative systems of transport has also suggested, under certain circumstances, the adoption of elevated guide-ways with stations constructed at the ground level where necessary space for at least accommodating the stations is available on the surface. In their view, the extra cost vis-a-vis surface corridor in this case will be of the order of 7% only, which is considered less than the cost of over bridges and suggested fencing, etc.

6.38 Where the space on the surface is not available, the right of way will have to be either elevated or underground. The network should not be thought of as solely elevated or surface or underground but rather the three should complement each other and fit in with the requirements of the corridor. With the gradient ability of the modern transport systems, it is possible to take a dip underground where required, and then come up or go on the elevated alignment without any difficulty. The underground right of way, being highly capital intensive should be considered only in areas of extreme congestion and non-availability of needed space, as also in areas of historical or environmental importance. The precise break up between surface, elevated, or underground right of way for any alignment will have to be specific to the given city conditions.

6.39 Experience around the world indicates that the costs of a surface, elevated, and underground corridor are expected to range in the proportion of 1:5:10.

V. City Transport Cost Analysis

6.40 The Report of the Study Group on Alternative Systems of Urban Transport carried out a city transport cost analysis to work out the effect of the increased share of public transport, introduction of urban bus specifically designed for urban transport, and partly private operation of the buses on the transport cost vis-a-vis the present scenario (standard bus and prevailing model split for public transport). For this purpose, modal forecasts were first made for trip volumes per day and average trip rate per person per day vis-a-vis population, for certain horizen years using regression analysis. Also, the trip assignment data was generated on the basis of a gravity model for the hypothesized city forms, structures, and sizes to have trip volumes and corridors lengths for conceptual directional and ring corridors, for cities in different population ranges in India in the year 2001 A.D. Also potential share of public transport in 2001 A.D. was estimated for different modes. On the basis of the above relevant city parameters like network length, trip length, present modal split, projected modal split, peak hour trip volumes for the average city corridors as well as major city corridors were tabulated. These are shown in Table 6.3. For the city parameters the following clarifications are relevant:—

(i) Circular city was assumed;

(ii) network length refers to the length of one diametric corridor and not the whole network length;

(iii) the average city corridor is defined as the average corridor size in the city, at peak hour, section and direction;

(iv) the major city corridor is the inner radial at peak hour direction reduced to 50% of its theoretical value, since other roads in the quadrant will take up the remainder; and

(v) the relationship between peak hour direction value and the daily total is based on 10% of daily trips at peak hour and 60% in the peak direction.

6.41 Using the city parameters a city transport cost analysis was done. Only normal buses were used as only these could cover the whole city. Using the discounted cash flow technique and taking a discount rate of 12% and period of IRRs 25 years, were computed on the investment vis-a-vis benefits for the average city corridor for the present transport scenario (standard bus plus present modal split) and projected transport scenario like standard bus with projected modal split, urban bus with projected modal split, standard bus/urban bus with projected modal and partly private operation. For this purpose, the investment is taken as the subsidy required for operation and it is worked out by subtracting the fare box recovery at a fare rate of Rs. 0.10 per passenger km. from the direct cost of operation of public transport. The benefit is taken as the reduction in the total cost. The total cost is the direct cost of public transport and other personalised and IPT transport modes plus the costs on account of accident, pollution, and time. The following level of private operations was considered for analysis:—

Population in millions	Percentage of private operation considered
9 . . .	30%
6 . . .	30%
3 . . .	40%
1.5 . . .	40%
1 . . .	50 as well as 100%
0.75 . . .	50 as well as 100%

The analysis brought out the following conclusions—

(a) Increase in the share of public transport to the level of projected modal split led to a large reduction in total economic cost vis-a-vis the subsidy required for operation. The introduction of urban bus improved the position. The most favourable scenario was given by a combination of increased share of public transport, use of urban buses and partly private operation;

(b) to achieve the projected higher modal split for public transport, apart from better supply and organisation, it will be necessary to provide a comprehensive service and adopt affordable fares with an element of subsidy: and

(c) increasing the proportion of private operation on the recommended ratio will not improve the financial picture. On the contrary diminishing return will occur.

VI. **Corridor Analysis**

6.42 The Study Group also carried out a corridor analysis, independent of the city, to compare the relative performance of different road-based systems on similar lines as city analysis. The factor of private operation was excluded in this case. The discounted cash flow technique was used to work out net present value over a period of 25 years. The corridor analysis was done in respect of maximum demand corridor for different levels of modal split. Such separate corridor analysis, independent of city analysis, was carried out for the following reasons:—

(i) The city lay out affects the size and physical parameters of individual major corridors, which will not be identical, and are, therefore, not representative of the entire city; and

(ii) a system may be most economic and effective for a particular corridor even though it cannot be extended to the whole city and has to be integrated with other modes of transport.

6.43 The analysis brought out the following conclusions:—

(i) corridors over 7,500 pphpd need either 3 lanes or the banning of slow vehicles;

(ii) corridors over 15,000 pphpd will need either banning of slow vehicles with 3 lanes or exclusive right of way;

(iii) the maximum capacity of 2 lanes/direction is 1000 pphpd;

(iv) the maximum capacity of 3 lanes/direction is 40,000 pphpd with banning of slow vehicles;

(v) the maximum capacity of exclusive bus way is 30,000 pphpd;

(vi) the urban bus is the most economic and effective bus in all situations;

(vii) the double decker bus is not economical vis-a-vis even standard bus to its high capital cost; and

(viii) the trolley bus at medium demand is at about the same level in respect of direct cost, but about 3% lower in total costs, compared to the standard bus. At low demand levels, its infrastructure cost makes it more expensive. At high demand levels it is more expensive than the standard bus, since it cannot meet the demand, maximum capacity being only 20,000 pphpd.

VII. **Cost & Performance Comparison of Rail-Based Systems**

6.44 The Study Group on Alternative Systems of Urban Transport also carried out the cost and performance comparison in respect of rail-based systems on a representative 20 km. network for a capacity of 50,000 pphpd in the tenth year of operation, using the discounted cash flow technique and on a discount rate of 12%. The capital costs were derived mainly from the on-going railway projects. The costing did not include any pollution, accident or time costs, the same not being relevant. The net present value costs/passenger km. as worked out by the group for different systems are shown below:

System	NPV Cost/ passenger km. in Rs.
Medium capacity surface	0.28
Medium capacity elevated	0.36
Medium capacity underground	0.59
Heavy rail surface	0.29
Heavy rail elevated	0.39
Heavy rail underground	0.63
Medium capacity automatic driverless operation on a hypothetical network 10% underground 70% elevated, and 20% elevated with surface station .	0.38

6.45 The analysis brought out the following conclusions—

(i) The cost of the elevated system is 60% of the cost of the underground sysetm;

(ii) automatic driverless operations is virtually the same in cost as normal operation;

(iii) the costs are not sensitive to the traffic growth rate, though these will, of course, affect the capacity needed in the horizon year; and

(iv) while increase in the network length will obviously increase the total cost of the system, trip lengths will also increase proportionately with network length, leading to an unchanged cost/passenger km.

VIII. **Dispersal of the Traffic**

6.46 Dispersal of traffic is a very crucial factor to be kept in view while planning for any high capacity system. The dispersal area and arrangements have to be such that commuters are able to clear the stop station premises before the next vehicle arrives. Dispersal will have to be specially kept in view while adopting elevated right of way, as it may not be feasible to effectively disperse large traffic volumes in the range of 40,000 and above, from elevated stations.

IX. **Study Group's City and Corridor Recommendations**

6.47 The Study Group has projected a much higher modal split in favour of public transport and has made specific recommendations in regard to the suitable options for corridors with different traffic densities.

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In regard to the former, the recommendations are as below:

	City population	Existing modal split	Modal split to be targetted
1.	Below 1 million	..	30 %
2.	1 million	10%	35%
3.	1.5 million	15%	40%
4.	3 million	25%	50%
5.	6 million	50%	70%
6.	9 million and above	55%	75– 85%

6.48 The critical consideration in urban transport planning is the corridor density which requires to be catered to. It is in this respect that the Working Group considers the recommendations of the Study Group of particular relevance. These are summarised below.

(i) **Corridor of 10,000 pphpd**

The use of urban bus with provision of 3 lanes per side or 2 lanes with banning of cycle rikshaw/slow vehicles to provide a modal split of 45% plus;

(ii) **Corridor of 15,000 pphpd**

Use of urban bus with exclusive bus way and a modal split of 65% plus. Alternative to exclusive bus way would be 3 lanes per direction with banning of slow vehicles;

(iii) **Corridor 20,000 pphpd**

Grade separated bus way and use of urban bus with a modal split of 70% plus;

(iv) **Corridor of 25-40,000 pphpd**

Grade separated bus way with modal split of 85%;

(v) **Corridor of over 40,000 pphpd**

Exclusive grade separated rail based system by conversion of existing exclusive bus way.

X. Citical Appraisal of Study Group's Recommendations

6.49 The Working Group considered critically the results of analysis and the recommendations based thereon, made by the Study Group. The perception of the Working Group which emerged as a result of the considerable study of available reports, studies and analysis of various city transport systems as well as from inter-action with a number of experts and administrators, is very strongly in favour of maximising the share of public transport. All out efforts to discourage the resort to use of personalised modes of transport and to encourage public transport in the cities should be made in a systematic and concerted manner. In this view of the matter, the Working Group does not consider that the modal split targetted in favour of public transport in the Report of the Study Group is in any way on the higher side. For cities between 6 to 9 million population, the modal split targetted by the Study Group is at the level of 70% to 75%. The present level of modal split achieved in Bombay, a city of 8.2 million population is already above 80%, with road accounting for 42% and rail, 39%. In Delhi, a city of 5.7 million (1981), the modal split was 55% even though it depends solely on bus transportation and does not have the benefit of rail transport for city commuters (the ring railway being an ill-conceived project plays a negligible role). It stands to reason that if rail based public transport services were available in Delhi to supplement the bus system, the modal split in favour of public transport would have been much higher even at 6 million population level; there is perhaps no reason why it could not have been nearly as high as that in Bombay. The Study Gorup's targetted modal split of city of that size i.e. 6 million at 70% would thus not seem to be high enough. There is a case for it to be pitched substantially higher. The Working Group is therefore of the view that in so far as cities of 5 million and above population are concerned, the targetted share of the public transport in total city transport should not merely be 70% but should be pitched at a minimum level of 80% and urban transport planning should systematically aim at raising the share further as the city size grows. In other words, progressively larger proportions of traffic demand in growing cities should be met through public transport at the expense of the private modes.

6.50 In so far as cities below 5 million population are concerned, several of them have already crossed the 50% mark in terms of modal split in favour of public transport. Thus Bangalore with population of 2.9 million, Madras with population of 4.3 million and Ahmedabad with population of 2.2 million had modal splits of 55%, 53% and 48% respectively. It is interesting to note that Visakhapatnam with less than 1 million population had as high a share of bus transport as 62%, which goes to show that given the right policies from the earlier stages of city planning, the use of private vehicles can be kept down and the city-dwellers led to make use of public transport. In view of the fore-going, the Working Group is of the view that a concerted effort must be made in respect of all one million plus cities to raise the share of public transport in a big way so that a floor of 50% is achieved. For cities above 2 or 2.5 million, an effort to raise the modal split in the range 60 to 70% depending upon the local conditions, must be made.

6.51 In so far as the results of corridor analysis of the Study Group (vide Section VI earlier) are concerned, the capacity of bus-ways with 3 lanes per side at 40,000 pphpd at the maximum is considered to be only of theoretical value. For, in actual practice, the ultimate capacity for any bus system would be constrained by the number of buses that can be handled without bunching at the bus stop. On the other hand, the maximum capacity of 2 lanes per side bus-ways at 10,000 pphpd appears to be a substantial underestimate. Even after accounting for the very poor travelling conditions on Delhi buses, the traffic throughput capacities achieved by the DTC in mixed traffic situation are of a much higher order. It is also not considered practicable to provide exclusive right of way for the buses in the existing situations of the cities on the busy corridors where there is need to cope up with high density traffic flows; particularly at peak hours. The claims of non-public transport modes on these roads cannot be ignored. One would therefore have to contend with bus system working along-side other transport modes with, of course, as much regulation in favour of the buses as possible. The assessment of the Working Group therefore is that the capacity of bus-ways on two lanes per side in normal traffic conditions with due regulation in favour of the buses should be placed at between 15,000 to 20,000 pphpd. The capacity of 3 lanes per side bus system could not be placed at more than around 25,000 pphpd.

6.52 The perception of the Working Group is also at variance with that of the Study Group in so far as the feasibility of using exclusive bus-ways is concerned. The Study Group has accepted that it may not be possible to provide exclusive bus lanes in the existing corridors. It has, however, considered the adoption of elevated bus-ways along existing rights of ways to tackle corridor demands of 25,000 to 40,000 pphpd. The Study Group has envisaged a situation where such grade separated bus-ways may subsequently have to be converted to rail based system, which could then meet traffic demands higher than 40,000 pphpd. It is the view of the Working Group that such a two-phase operation will not at all be a practicable one. Once elevated structures are in use for catering to high traffic throughputs, it will not be possible to stop using them for any length of time in order to replace them with LRT (Light Rail Transit) system. At any rate, the cost of civil construction would have to be incurred right from the start in order to make the structure robust enough to bear the load of rail based systems whenever they come. It stands to reason therefore that wherever such grade separated (elevated, underground or hybrid) systems are to be established they should be planned right from the start as rail-based operations. It is only in the cost of laying the track that there will be some over-capitalisation; the cost of the grade separated structure and the rolling stock would not have any such element in it.

6.53 Thus, the Working Group's perception in regard to the targetted modal split, capacity of 3 lanes per side bus-ways and on adoption of grade separated bus-ways to be converted later on to LRT is at variance with that of the Study Group. On the other side, the Working Group is in agreement with the Study Group in so far as the overall savings to the economy by increasing modal split in favour of public transport, are concerned. While there can be dispute about the quantification of these benefits, there can be no doubt that these would be of such a high order as to make investments in public transport in cities highly advantageous. The Working Group is also in agreement with the Study Group in its recommendations in favour of the use of specially designed urban bus for transportation in the cities in preference over the buses currently in use which are mounted on the ordinary truck chassis. Clearly, the truck chassis does not take into account the need for passengers to board and alight quickly and comfortably. Therefore, the case for specially designed urban bus on the lines of passenger buses in use abroad stands on sound footing.

6.54 The replacement of the present buses by urban buses should be aimed at in all million plus cities as per a time bound programme. Simultaneously, the smaller cities could also be encouraged to go in for the urban bus wherever new buses are to be fielded.

6.55 From what has been stated above, corridors upto 20,000 pphpd can be handled with bus systems if two lanes per side, if not 3, are available and traffic regulation in favour of the buses is resorted to. Since exclusive bus-ways are not favoured, it would not be possible to achieve higher throughputs with the bus system. Wherever the volume of traffic to be catered to exceeds this level, the adoption of medium capacity rail transit systems i.e. LRT running on an exclusive right of way, with an appropriate mix of surface/elevated/underground grades, as may be dictated by the city corridor conditions, should be the favoured choice. This system, with affordable levels of congestion and discomfort during peak hours, should be able to handle traffic flows upto 50,000 pphpd.

6.56 For corridors, which must cater to capacities beyond 50,000 pphpd the only solution would lie in the adoption of underground metro system. Such systems being exceedingly capital intensive should be the absolute last choice, if no way to disperse/discourage traffic generating activities is at all found practicable. It may also be noted here that the underground metro system may not fulfil the expectations that may be placed on it, until it is large enough to provide the commuter with one-shot service. The experience of Calcutta Metro suggests that if the commuter has to combine the underground with other modes of transport, with the underground metro providing him service only over a smaller part of his route, he may not find it convenient to use the metro. It is therefore not merely a question of catering to a particular heavy density corridor by laying an underground system for a few kilometres, but that of providing a whole length of viable system connecting several corridors at a time. Studies would need to be made, in actual city conditions, for determining the viable combination of corridors which would form one whole system to be catered to by underground metro. This implies that this system would need to cover several corridors where traffic density may be much lower and which could independently be catered to by LRT. Subject to specific studies being made, it is the view of the Working Group that the costs involved in providing the requisite underground metro network, as distinct from catering to one corridor as has been done in Calcutta, would be too high to be within our reach. In contrast to that, linking the same corridors with grade separated LRT alongside the operation of the existing road system, coupled with adoption of TSM techniques referred to in Chapter 5 earlier, is considered to be the optimal solution.

TABLE 6.1

Operating Parameters for bus modes

Parameters	Standard Bus	Urban Bus	Double Decker Bus	Trolley Bus
1	2	3	4	5
Turning radius (m)	11	11	12	22
Vehicle capacity	55(35)	60(35)	90(70)	75(40)
Design (seats) Crush	80	90	120	110
Acceleration (m/s/s)	0.5	0.8	0.4	1.2
Cruising speed (kmph)	60	35—45	50	60
Average speed (kmph)	17	20	15	20
Energy source .	Diesel	Diesel	Diesel	Electricity
Maximum capaity ('000 pphpd per lane) . . .	9—10	10—12	12	13—14

TABLE 6.2

Operating parameters for rail based systems

Parameters	EMU	Under-ground Metro	LRT	Magnetic Levitation
1	2	3	4	5
Coaches/Train .	9	8	3/4 (Articulated)	4
Tare weight (T) .	350	300	123	36
Payload/Tare Ratio	0.5	0.52	0.585	0.88
Axle load (T) .	19	16.5	8	n/a
ACC/DEC(M/S/S)	0.5/0.8	0.85/1.0	1.0/1.3	1.0/1.3
Maxm. Speed (KPH) . .	90	80	80	80
Minm. radius (M)	200	200	30	20
Maxm. gradient %	2	2	7	10
Power Supply .	25 KVAC	750 VDC	750 VDC	1 KVAC
Train capacity (Crush capacity based on 8 persons/M2) . . .	2900	2600	1200	530
Minm. Headway (Mts.) . .	3	2.5	1.0	1.0
Operating capacity ('000 pphpd) .	20 - 60	30- 80	20 - 50	10- 30

TABLE 6.3

City Parameters

Population (Million)	Trip Rate	Type	Net work lgth (Km)	Avge. Trip lgth. (Km)	%age Slow Traffic	Present		Theoretical Modal Split (%)	Projected		Avge. City Corr. ('000 pphpd)	Multiplying factor (i.e. no. of average corridors)	Major City Corr. ('000 pp hpd)
						Modal City	Split % Corr.		Modal % City	Split Corr.			
9.0	1.26	U	35	12	20	55	80	80	75	80	20	10.2	60.0
6.0	1.23	U/NU	26	9	30	50	80	73	70	80	15	8.9	40.0
3.0	1.159	U/NU	20	7	60	25	35	65	50	55	10	6.3	20.0
1.5	1.028	NU	13	4.5	75	15	25	60	40	45	5.0	6.2	10.0
1.0	1.025	NU	11	3.5	75	10	10	57	35	35	3.5	5.3	5.0
0.75	0.765	NU	10	3.1	80	10	10	56	30	30	3.5	3.0	(3.5)

U- Uniform
NU-Non-uniform

Source: Report of the Study Group on Alternative Systems of Urban Transport, Government of India, February, 87.

CHAPTER 7

MANAGEMENT

7.01 As has been stressed in Chapter 1, the management structure of urban transport planning, development and operation remains fractured at all levels. The need for overall planning, co-ordination, and command can scarcely be over-emphasised, specially in the context of the appalling state in which urban transport has fallen and the sheer stupendousness of the challenge that must be faced if it is to be brought to a satisfactory level of functional efficiency.

The structure at City Level

7.02 While our larger cities are administered through municipal corporations which are vested with considerable fiscal, financial and administrative powers, the medium size cities are managed through municipalities with much less authority. Even in the case of Municipal Corporations, the authority available to them is far from being commensurate with the range and complexities of the problems that they confront in the process of rapid urbanisation taking place in the context of severe constraints of physical, financial and other resources. Often, the municipal bodies remain suspended for long periods leaving the control of city governments in bureaucratic hands. At best of times, the structure of local of self-government at the city level is weak and unequal to the tasks to be performed by it. At worst of times, it is marked by gross mismanagement, rampant corruption, dominance by vested interests, paucity of resources, political interference and administrative maladies. Often reducing it to a state of utter disrepair.

7.03 The pervasive weakness of the structure of local self-government at city level stands in sharp contrast with the powerful city governments functioning in the urban areas of developed countries. The city governments in the U.S.A., for example, are very much the masters of their own houses in these countries and are better equipped with leadership, managerial expertise and sources of finance to be able to tackle the problems of the cities directly. They have access to a much larger resource base, are clothed with wider legal and administrative powers including police powers and have much greater freedom of action. Even so, they do need and receive support from State and Federal authorities. Such support is often unavoidable and invaluable for tackling the mammoth problems that they face owing to the high costs of meeting the requirements of burgeoning megalopolises and other large urban settlements.

Need for a Powerful Coordinating Authority

7.04 Our country is still far behind in having the kind of city government which answers the needs of a really modern society in an era of rapid technological advance, explosive urban growth and rising aspirations. What is more, the tendency does not appear to be one of greater devolution of power and authority to them; rather the movement appears to be more towards greater centralisation at higher levels. This has its own implications for an activity such as urban transport planning, which cuts across the spheres of authority of a number of bodies each of whom may be functioning independently and in some cases, drawing its strength from even higher echeleons than the local government itself. Thus, in the city of Delhi, though the Delhi Administration has the authority to regulate transport, the agencies which are involved intimately in providing the service or extending infrastructural support are not all under the Delhi Administration but draw their strength directly from the Central Government. The Delhi Development Authority which is, responsible for regulating land-use and finalising roads lay-outs, etc. functions under the Government of India in the Ministry of Urban Development. The Department of Surface Transport of the Government of India clears proposals for roads and bridges in the city; the Indian Railways are responsible for rail-based transport systems and the CPWD of the Ministry of Urban Development is responsible for a part of the major arterials in Delhi. The Delhi Police is, of course, another independent centre of power and the DTC functions again under the Government of India, Ministry of Surface Transport. In the cities in the States, similar inter-mingling of authority exists between the local and state governments and where Plan funds are involved, which is often the case, the concerned Ministry and Planning Commission of the Government of India also come into the picture.

7.05 Since it is most unlikely that Metropolitan cities will have, within a foreseeable future, powerful city governments with all the concerned authorities coming under their control and command, the challenge lies in devising an organisation at the city level capable of bringing the diverse elements together and welding them into a single powerful instrument for urban transport planning and development. The idea of creating a Unified Metropolitan Transport Authority (UMTA) has therefore come to be acknowledged more and more as a feasible solution to the problem by placing at one point the command of the urban transport scene of each of the large cities in the country.

Role and Responsibility of UMTA

7.06 The first and foremost responsibility of UMTA would be to bring about coordination between different transport modes so as to exploit to the maximum extent feasible the passenger and goods carrying capacity of available transport infrastructure. At any point of time, a city may have several or all of the following transport modes operating to serve its residents as also those of its hinterland:—

(i) Mass public transport (MPT) which may be rail-based such as EMUs, LRT, etc. with its own dedicated track or road-based, such as trams, buses, etc.;

(ii) Intermediate public transport (IPT) composed of fast modes, such as, taxis, tempos, three-wheelers, scooters rickshaws or slow modes such as cycle-rickshaws, tonga, etc.;

(iii) private transport consisting of fast modes, such as, motor car, scooters, mopeds or slow modes, such as, bi-cycle; and

(iv) goods transport vehicles—trucks, tempos, vans, hand-carts, etc.

7.07 In the case of public transport modes having their own dedicated track, it would be necessary not only to ensure proper planning and laying out of the most appropriate and cost-effective system in long-term overall context, but also that the system is provided with the necessary linkages with other modes so that its capacity is exploited to the full. Operational timings, fares, etc. would have to be planned in conjunction with the needs of traffic flow so as to avoid wastage due to bottlenecks, dis-jointed functioning and so on. Other, more flexible public transport modes, such as buses would have to be planned to operate in conjunction with the remaining system so as to maximise service to commuters to meet their requirements smoothly and efficiently.

UMTA's Role vis-a-vis IPT

7.08 In regard to the IPT, the Authority will have to play a tremendous regulatory role so as to enable it to fill the gaps most suited to its own capability, without at the same time denying the residents the facility that comes to them by having access to affordable transport right at their door-steps. Those who do not use their own transport can get a door-to-destination service only with the help of such intermediate public transport. It serves as an indispensable means of transport for short distances and for providing connections with mass transport systems. The IPT has the disadvantage of utilising movement space inefficiently in comparison with MPT. Therefore, road spaces needed for MPT should, as far as pcssible, be kept free from the IPT. At the same time, by providing the link from the citizens' doors to MPT corridors, it has the advantage of obviating for a number of citizens the need to take recourse to personalised transport. It becomes convenient for them to avail of door-to-destination service by adopting a suitable combination of IPT and MPT. The Authority would therefore need to regulate IPT, its availability by suitable modes in different areas, fare structure, access to arterial roads, etc. in a manner that strikes a happy balance between the pluses and minuses of different IPT modes in different spatial situations.

UMTA's Role vis-a-vis Private Modes

7.09 In regard to private modes, the Authority would aim at designing an overall transport system which enables citizens to maximise recourse to MPT for the reasons of overall economy, environmental health, safety, etc. already outlined in earlier chapters.

Regulation of Flow of Goods Traffic

7.10 The role of the Authority in regulating the flow of goods traffic by various means in different areas at different periods would be of crucial importance in minimising the competition between passenger and goods traffic for the available space for movement, parking, etc. This task would also require to be undertaken in an overall context where micro level operations fit into the macro plan in an optimum manner.

UMTA's Role in Planning Transport Supply

7.11 Yet another major responsibility of the Authority would be to monitor constantly the demand and supply of urban transport both at the micro as well as the macro level, not only within the precincts of the city but also in relation to its linkages with the hinterland, to devise a fare-structure calculated to maximise the flow of traffic specially on MPT on the one hand and minimise the costs in terms of operational subsidies on the other. The Authority would be fully responsible for the planning of transportation in the years to come in all its aspects, namely, ascertaining and guiding traffic flows, selecting different systems for different corridors, providing linkages, initiating development of system on ground in good time, getting the projects completed and actually operating the system.

UMTA's Role in Coordinating Land-use and Transport Planning

7.12 Another major area of the Authority's responsibility would be to keep close co-ordination with the land-use planning authorities in order to bring about integrated transport land-use planning in the city and its environs. This would be possible if the Authority is given a say in determination of location of major traffic generating activities in and around the city, in planning of the traffic arteries, in provision of road side facilities for different transport modes as also in allotting spaces of transport depots, garages, service stations, parking, etc.

UMTA's Traffic Regulation and Control Role

7.13 The UMTA would also have the authority for traffic regulation and enforcement by way of keeping the transport infrastructure free from encroachment and in enforcing strict observance of other regulations that makes for the smooth flow of traffic. It would be responsible for all aspects of traffic engineering.

Matching power and authority to UMTA essential

7.14 The UMTA would be able to discharge the role assigned to it only if it has the requisite power, authority and capability, including finance, to be able to bring about the desired integration of urban transport planning, development and management. A conscious effort will have to be made to ensure that it is not hampered in the discharge of its responsibility by being deprived of the necessary authority in any area which is integral to the unified, harmonious and optimum functioning of the entire urban transport system. The emphasis in UMTA will therefore have to be on the word 'unified'. A unification of direction, control and command over the transport system for the city and its environs is, indeed, the very raison d'etre of such an institution.

Area under UMTA's jurisdiction

7.15 In regard to the geographical area which should be brought under the jurisdiction of UMTA, it is felt that confining it to city boundaries would not be appropriate. The transportation of a city should be viewed, more particularly in the medium and longer term, in the context of its linkages with the hinterland. Even in the short-run, development of more efficient linkages with outlying areas within the city at its periphery and the so-called satellite towns can help in the process of gradual decongestion and in diverting the further accretion of population from the city proper to such other areas. It is therefore felt that the geographical jurisdiction of UMTA should atleast be co-terminus with the area under the development authority and may, in some cases, extend beyond those limits to cover certain other pockets which may be of importance as traffic generating centres for the city.

7.16 In short, the UMTA shall be charged with the responsibility for bringing about *unified* planning and management of entire city transport scene for—

(a) setting the goals—both short—term and long—term to be secured for providing the commuters with efficient and comfortable transport all over the city and its environs;

(b) undertaking studies and surveys of requirements at all levels, examining various options available to meet them, choosing the best solution and implementing and operating the same efficiently;

(c) bringing about coordination in the functioning of various transport modes by planning and regulating their operation;

(d) securing optimum resource to MPT so as to minimise the total social cost of transportation, including cost—elements attributable to environmental pollution, accidents, loss of time, fatigue and so on;

(e) ensuring integration of land-use planning with transport planning in order to bring about all-round, mutually supportive relationship between the two:

(f) taking the necessary traffic regulation and traffic engineering measures for the optimum utilisation of transport infrastructures; and

(g) obtaining the requisite human, financial and physical resources to be able to discharge its responsibilities adequately.

7.17 Once the concept, role and responsibility of UMTA is agreed upon a crucial aspect to be considered is that of its relationship with the existing hierarchy of authorities functioning at the city level. Two authorities with a great deal of frictional/uneasy existence between them exist already in the form of the Municipal Corporations and Development Authorities. Both these statutory authorities function under the State Government and it is envisaged that the necessary co-ordinaion between the functioning of the two can be brought about at that level. In practice, however, the situation remains far from ideal. In this context, it would not seem to be advisable to create yet another statutory authority, independent of the existing two.

7.18 In general, the jurisdiction of the development authorities extends to a far larger area than that of the city corporation. More than one city corporation and smaller local authorities are covered within the jurisdiction of the development authorities. Further, the intimate inter-dependence between land-use and transport planning is a major factor to be taken into account in this context. Transport planning for the city and its environs should therefore have for its canvass the larger area that comes under the jurisdiction of the development authorities. In fact, in some cases, where regional planning extending far beyond the confines of a development authority and encompassing a number of cities and towns is being attempted (National Capital Region being a case in point), it may at some stage be found necessary to extend the jurisdiction of UMTA beyond the areas falling under the ambit of the concerned development authorities in order to cover the whole or most of the region.

7.19 It thus appears logical to start with UMTA being located within the development authority itself. This can be done either (a) by creating the authority as a separate body with its own budget, management and control structure but making it subject to the overall superintendence and control of the development authority or (b) by enlarging and strengthening the development authority itself with requisite human and material resources and equipping it with additional power and authority through the amendment of the Development Authority Act, with a separate chapter on UMTA added to it. The choice can be made keeping in view the specific context of each of the metropolitan areas. In either case, it is of essence that the authority is clothed with the powers that are exercised presently by the State Transport Authority as also those of the Transport Directorate, namely, licensing, registration, etc. of vehicles, drivers and so on. It should also have the power to levy tools, fees and taxes on specified category of activities connected with the sphere of its own operations. The composition of the Development Authority may also have to be amended in order to equip it for undertaking the additional responsibility in respect of urban transport.

The structure at the state level

7.20 The functionaries involved in urban transportation at the city level report to their respective departments at the State level. The problem of bringing about, at the State level the requisite unity of direction and command, both in planning and execution of urban transport projects as well as in their operation and maintenance therefore remains an outstanding one. No State has so far felt obliged to create a separate nodal point for urban transport. This gap is to be bridged by creating a Department of Urban Transport as a separate and distinct entity at the State level. What is necessary is that there should be built up, at one point in the State Government, the requisite knowledge, experience, expertise in the field of urban transport planning, policy and implementation. Then only will urban transport receive the in-depth and constant attention without which it is well-nigh impossible to achieve any substantial break-through in this field. The entire range of planning and policy issues relating to transportation in cities and towns will only then receive the requisite expert and constant attention of a full-fledged Department at the level of the State Government.

7.21 In view of the necessity of integrating land-use planning with urban transport planning, which has already been emphasised, it would be advisable that the proposed Department of Urban Transport is placed in the same Ministry of State Government which deals with municipal bodies and development authorities. Apart from providing overall guidance and direction to the UMTAs in the State, one of the major responsibilities of such State Departments of Urban Transport would be to provide leadership to non-UMTA cities in urban transport planning and management. The Group is of the view that such planning should be initiated in respect of all cities when they cross the 5 lakh population mark and that it should keep a long-term perspective in view. These departments would also be responsible for channelling finances and extending other support to city authorities including UMTAs as suggested in the next Chapter on Financing.

Structure at the national level

7.22 For the same reasons as stated in the case of the State Governments, there is the need at the national level, for a separate and distinct Department of Urban Transport to be set up either under the Ministry of Urban Development or even as an independent ministry of the Central Government. The decision taken recently to entrust the responsibility for urban transport to the Ministry of Urban Development at the level of the Government of India is to be welcomed. This, however, does not go far enough. The Group is strongly of the view that a separate Department manned by experts in the different fields such as economists, engineers, TSM specialists, etc. must be established without loss of time. A major role of this Department would be to promote specialised studies, research and training of personnel in the area of urban transport. It would co-ordinate such studies and research presently being undertaken in various institutions engaged in this sphere of work in different parts of the country. In particular, the following aspects would require to be accorded pointed attention:—

(a) development and standardisation of techniques, methodology, formats, etc. for traffic surveys/studies;

(b) creation of country-wide data base and documentation covering world-wide trends and experience;

(c) manpower planning and creation of necessary training facilities pertaining to different facets of urban transport; and

(d) transportation systems management techniques.

7.23 While the Department could discharge the aforesaid responsibilities in the beginning, the Group feels that it may be advisable, at a later date, to establish a separate autonomous institution at the national level for this purpose.

7.24 Another major role of the Department at the national level would be to provide leadership and discharge an overall coordinating role in the field of urban transport planning and management in relation to the State Governments. Also, it would be responsible for channelling of funds to State Governments/UMTAs for this task.

CHAPTER 8

FINANCING

8.01 In the context of the undisputed need for according high priority to city transport in urban planning and ensuring the commensurate flow of resources to this sector, the financing strategies and options have to be examined in an innovative and bold manner. Then alone can we expect to make a real headway in this sphere of crucial importance for the orderly growth and smooth functioning of our large cities. Not only for the finance required for laying out the transport system, that is, for initial capital investment, which would, by itself, be quite heavy, funds are also required on a long-term recurrent basis for meeting the revenue deficits of urban transport systems. It is no longer disputed that the accruals from fares and other sources, such as, sale or lease of shopping and commercial spaces, advertising revenues, etc., can never be adequate to meet the current operating expenses on track and fleet maintenance, plus the costs of servicing of capital and provision for replacement and renewals. Unless fares are very low, mass transport system may fail to attract the huge volumes of traffic which alone provide the justification for its being established in the first place. The conclusions arrived at by the Railway Reforms Committee are not unique but have very wide and general acceptance and deserve to be recalled here:—

> “9.19 All the World over, Transport Undertakings for commuters and intra-urban traffic are subsidised and India can be no exception.
>
> 9.20 The extent of subsidy may have to be decided periodically, even from period to period taking into account the levels of efficiency that should be attained both in construction and operation.
>
> 9.22 Not only the running of such systems has to be subsidised, their capital cost has also to be met principally by the Government (Central as well as State) and Urban authorities concerned”.

8.02 The overwhelming justification for public transport has been established in quantifiable terms by the Study Group on Alternative Systems of Urban Transport set up by the Government of India in its Report published in February 1987. It has worked out the reduction in annualised economic costs for 26 cities based on projected increases in shares of public transport[1] at Rs. 2250/- crores, inclusive of a saving of Rs. 600 crores on account of reduced fuel consumption alone. To these direct savings must be added the benefits which accrue to the individuals in terms of increased all-round functional efficiencies. The Report of the Study Group unequivocally concludes:—

> “it must therefore be clearly understood that public transport must make a loss on its direct costs (since affordable fares are lower than even the costs of efficient operation), in order to reduce the overall costs to the national economy. The projected increases in the share of public transport which would actualise the saving visualised above would accrue only when (i) fares are affordable and provide equity to poorer people; and (ii) for the not-so-poor, they provide a positive pull to dissuade them from taking to personalised modes of transport. Also, it would be necessary to ensure that the supply of public transport is adequate in quantum, comprehensive in coverage and acceptable in quality of service”.

8.03 Looked at in the correct perspective set out above, the problem of financing city transport boils down to marshalling the savings which would accrue to the national economy and diverting a part of the same for the establishment, operation and maintenance of mass public transport system. The approach should therefore, be informed by a radically different financial understanding and outlook than going by the simplistic concept of return on investment. The gainers—direct as well as indirect—from a smooth and efficient mass public transport system, must be broadly identified and made to contribute both to the capital costs of laying out the system as well as to the recurrent costs of its smooth operation and maintenance, replacements and renewals, improvements and enhancement.

Fare policy

8.04 The basic considerations, which require that the fares on public transport system, are kept low have been stressed already. Experience of foreign countries shows that the fare box collections are inadequate to meet even the revenue expenditure incurred in operating, maintaining and administering the system, not to speak of meeting the liabilities on account of interest, depreciation and renewals. An analysis of data from 44 cities in Europe, USA and Canada shows that only one of the 44 cities was able to meet over 80% of its revenue expenditure and as many as 19 could not meet even 50% of the same. The results of analysis are shown in the following table:—

Fare Box Ratio

Fare Box Ratio	Number of Undertakings			
	1971	1975	1977	1979
100% . .	8	..	..	..
91- 100% . .	3	1	..	..
81- 90% . .	7	4	1	1
71- 80% . .	4	11	14	9
61- 70% . .	5	5	6	4
51- 60% . .	6	4	6	11
41- 50% . .	1	7	8	9
31- 40% . .	..	3	5	6
21- 30% . .	..	1	3	4
	34	36	43	44

Definitions

(a) Fare box revenue = Fare income paid by travelling public

(b) Revenue Expenditure = Expenditure incurred in operating, maintaining and administering the undertaking EXCLUDING interest, depreciation and renewal charges.

(c) Fare box ratio (%) $= \frac{a}{b} \times 100$

8.05 It may be that due to high occupancy of public transport vehicles, often up to their crush loading capacities, we in India may be able to do far better in terms of attaining higher fare box ratios as compared to the cities of the western world, where commuters insist on a far higher quality of service. Even so, it would be reasonable to expect that mass public transport undertakings/authorities find it difficult to cover their revenue expenditure to the fullest extent from fare box collections, buttressed by other revenues from advertising, exploitation of the strategically located commercial spaces, etc.

8.06 The experience of Delhi Transport Corporation sheds considerable light on various aspects of financing of mass public transport operations. Details of financial results, including those of loans from Central Government outstanding from year to year, are presented in Table 8.1.

8.07 As would be seen, the undertaking has been incurring working losses every year continuously overall of its working life. The working loss (column 3 of the Table), which does not take into account either the provision for depreciation or the interest on Government loans, has risen rapidly in the eighties which account for a loss of Rs. 292.64 crores (about 90%) out of the total loss of Rs. 326.60 crores incurred by the Corporation over the entire span of its existence. The fare hike introduced with effect from March 1986 has been able to halt the upward rise of DTC's working loss and cut it down to half the level at which it had peaked in the year 1985-86, a figure as high as Rs. 77.73 crores. Even so, the provisional loss for the year 1986-87 at Rs. 38 crores represents a very large outgo. It is not a co-incidence that the total working loss of Rs. 326.60 crores is almost matched by the total ways and means loan of Rs. 307.15 crores. Quite clearly, the Government has in practice, gone on meeting the deficit of the DTC from year to year in exchange of the fiction that it was advancing loans to DTC which it would be able to recover at some future date. The DTC on its part has happily piled up a total capital loan of Rs. 172.65 crores, a ways and means loan of Rs. 310.52 crores and interest liabilities to Government of the order of Rs. 447.94 crores and its books of accounts also have a paper provision of Rs. 84.60 crores on account of depreciation. The whole situation can only be described as a massive make-believe. For, no one can be under an illusion that these liabilities can ever be met otherwise than by being written off.

8.08 Piling up of loan on loan and interest on interest is not good for the morale either of the borrower or of the lender. The astronomical figures make a nonsense of any effort at achieving realistic savings which pale into insignificance and appear like dust in a balance, in comparison with these huge amounts. Such a disastrous approach requires to be given up without any loss of time. The following conclusions are thus reinforced in an indisputable manner:

(i) Not only should the capital be free from interest or dividend liability, the provision for depreciation i.e., for renewals would also have to be made in a like manner.

(ii) Subsidy will be required even on the day to day operation and maintenance of mass public transport system, if it is to subserve the large social goals which alone are its raison d'etre.

8.09 A decision would have to be taken in regard to the optimum fare structure which would meet the twin objectives of equity for the poor and incentive for the better off to prefer public transport to personalised modes. This question has been gone into by the Railway Reforms Committee (Report—B page 8, para 3.1) and by the Study Group on Alternative Systems of Urban Transport (February 1987; chapter 8). Both have come to the conclusion that a reasonable fare structure for urban transport in India should be at the level of 0.10 rupee per passenger kilometre and this should be applicable to all mass transportation modes. Most cities are around this level which must be continued and any remaining deficits of the city transport undertakings should be met from public funds. It must be stressed again that these subsidies are not in the nature of wasteful outflows from the exchequer but represent the price to be paid for the benefit of smooth, orderly and efficient functioning of the cities, functioning as they do as the hub of economic activities of the nation and providing the impulses of growth and development to the society as a whole. Not only that; these subsidies, as has been outlined earlier, are in the nature of investments which have a high economic return even when viewed purely in terms of savings to the economy as a whole.

8.10 The essential ingredients of a bold, fresh approach to the financing of urban transport should thus be:—

(a) The capital cost of setting up the system including the provision of rolling stock should be met entirely out of funds which do not have to bear any interest or dividend liability. The construction of roads and bridges has traditionally been well accepted as the responsibility of the Government, development authorities or municipal bodies without any expectation of interest or dividend from such investments. Extending the same logic to the provision of mass public transport should be regarded as the natural next step in the scheme of urban planning. This has belatedly been accepted in the case of Calcutta Metro where the Central

Government has decided that the capital investment for laying the system which will be around Rs. 850 crores will be treated as an interest free loan.

(b) In order that the public transport system established at a huge cost to the society is exploited to the fullest extent, thereby yielding maximum social benefits for the costs incurred, it would be inescapable that the fares are kept low enough to enable the poor to go about the business of earning their livelihood in any part of the city without being over-stressed financially and the better off to be dissuaded from straining further the already overburdened transport infrastructure through the use of socially as well as privately expensive personal vehicles. This implies an acceptance of substantial amount of subsidies on operations and maintenance account as well; this again calls for provision of funds from out of government revenues, financed mainly from taxes and cesses.

(c) Each identifiable component of the economy of the cities benefiting from or burdening the urban transport infrastructure must be made to contribute to the capital as well as operating cost of the system. At a UITP Congress held in Lausanne in May, 1987 the simple principle of the cost of public transport being spread over all groups who may expect to benefit from it was underlined. Experiences of various countries pointed to the difficulty in identification of specific beneficiaries and collecting their contribution on a quid pro quo basis. Local or national taxation was considered as probably the only means by which benefits could be re-captured from motorists, residents, retailers, property developers and so on. It was noted that sales-taxes had worked in North America and a local employment tax was found effective in France.

(d) Simultaneously with the securing of contributions from the beneficiaries of the public transport, fiscal measures should also aim at erecting disincentives and barriers against avoidable and inefficient use of the over-strained transport infrastructure, particularly roads and bridges, inefficiently through the use of personalised transport. Since the problem is acute during peak hours, private vehicle owners need to be discouraged from using specified arteries during peak hours. It would, however, require considerable ingenuity in devising a mechanism capable of being administered smoothly.

8.11 At the governmental level, the clearly identified institutions responsible for playing a major role in all aspects of urban transport including financing are the City Corporations, the State Governments and the Government of India. At the non-governmental level, it is the major participants in the economic activities spanning the vast areas of industry, banking, insurance, transportation, agricultural marketing, tourism, communications, recreation and so on who are the major and well identifiable beneficiaries of well functioning city system. It is these participants who should be called upon to contribute to the common national/local kitties of finances for urban transport systems.

8.12 It is not only from the common kitty of resources that the funds for urban transport should be drawn. The current accruals being already fully committed to meeting the other pressing demands of the society, what is required is to secure (i) an additional mobilisation of resources from all those who benefit from the system with the single objective of creating a large pool of funds earmarked for city transportation; and (ii) a pooling of resources by the concerned agencies at different levels for meeting both the capital and revenue requirements of MPT. A nexus will have to be created in the minds of all those who are called upon to contribute towards construction and operation of MPT system, between the contributions they make and the benefits they receive, as the same may not be directly perceived in terms of clear-cut quid pro quo. Such a mobilisation of resources should take place at all levels of government. City Corporations, the State Governments and the Central Government must collect a cess for urban transport at such points as are amenable to their respective direction and control.

Role of City Corporations

8.13 The availability of financial resources with the Municipal Corporations is notoriously inadequate even to enable them to discharge their obligatory functions of sanitation, public health, elementary education, construction and maintenance of roads & bridges, provision of water supply, power and so on. This is reflected in the poor standard of the basic civic amenities that they are able to extend to their citizens. A look at the annual income of the 12 million plus cities presented in Table 8.2 reveals that but for Bombay, no other city corporation could be considered to be anything but poor in financial resources. This is not only because their tax base is narrow and also because the local vested interests prevent the optimum exploitation even of such sources as they possess.

8.14 An examination of the data presented in the table indicates the extent to which several city corporations are tapping their resources of revenue in a grossly inadequate matter. The contrast between Bombay and Calcutta is highly revealing. Even Delhi which receives very large sums by way of Plan outlays, exceeding those of some of the States, would clearly seem to be getting away with rather low tax burden on its citizens and its burgeoning business and industry.

8.15 The relatively lower contribution of property taxes, in contrast with the unthinkable boom in property values, is another noticeable feature. All the world over, commercial organisations and residents pay for civic services through a system of weighted property tax. In India the situation is different. The property tax, in practice, does not change unless property changes hands and it is not adjusted to the rising cost of providing the services. Since urban property values are directly related to investments in urban development, equity demands that a good portion of the gains must be siphoned off and ploughed back into city development, including transport.

Potential at City Corporation Level

8.16 It is imperative, therefore, that these local bodies are provided with sources for raising revenue which are capable of yielding substantial amounts and are also elastic to changes in the price index. They could, for instance, be empowered to levy a pay rolls professions tax on all persons having their places of work within their jurisdiction. Municipal Corporations have been unable to collect significant amounts from the taxes on trade and callings. The revenue from this source in Bombay was as much as Rs. 7.7 crores in 1960-61 but the tax has since been given up. In Madras, it yielded Rs. 11.71 crores in 1984-85 and in Calcutta Rs. 2.15 crores in 1983-84. Most other local bodies do not impose this tax and some who do, collect less than Rs. 1 crore per annum. In this context, the modality of the pay rolls tax appears to be quite attractive. There is, however, one major snag in imposing such a tax in a situation where a very large part of city population might remain out of the pail of similar charge on their monthly incomes. A judicious combination of the pay rolls tax for the salary and wage earners in the organised sector and a professions tax on others seems not only desirable but also called for.

8.17 Though property taxes do yield a neat amount to the exchequers of these corporations, their potential remains far from being fully exploited. Whereas property tax accounted for only around 1/4th (Rs. 168 crores out of Rs. 685 crores in 1984-85 in respect of the 28 municipal corporations) of the total tax revenue, this proportion was as high as 81.6% of the local government revenues in USA in 1975, having come down from 88.2% in 1950. If properly administered, property tax is not only a consistent producer of revenue that keeps up with the rate of inflation[5], but it is also based upon the benefit principle of taxation since most local governments/services are property related (fire, police, roads, sewage, etc.)[6]. The value of the property owned by a person also reflects his relative ability to contribute to the maintenance and expansion of the civic services and thus this tax satisfies the ability-to-pay principle as well. Since valuation of property requires considerable skill, objectivity and integrity, its proper administration requires the creation of cadres of tax assessors and collectors who possess these attributes. A well-structured system of speedy assessments, reviews and appeals would be necessary and indispensable if this source of revenue is to be tapped to its full, in a smooth, efficient and fair manner. Property values should be assessed periodically so that a small part of the gain that accrues to the property owners/occupiers could be garnered away by the local authorities for meeting requirements of urban management including provision of MPT. It is important that the system of property tax must be so devised as to provide for the real beneficiary to be identified and taxed. Where rents accruing to owners do not go up with the increase in property values, the obvious beneficiary is the occupant. The law should permit the occupant to be subjected to a tax in such cases. Even the apportionment of the tax between the two should be permissible where it can be based on a sound and objective criterion. It would have to be ensured that the rates are kept at levels which do not become extortionist, the tax payers are bound to feel pinched but they should not be made to feel driven to the wall. For, it must be kept in mind that being a tax whose incidence is not hidden in any way and which usually has to be paid in one lump-sum every year, it is a painfully obvious tax liable to become "the focal point of tax payer unrest."[7] Considering the rapid pace at which urban property values have been rising, it seems reasonable to expect that the yield from this source of revenue might be doubled if it is effectively administered.

8.18 A number of local bodies are levying service charges on account of different services extended by them to the citizens. In overall terms, the income from such service taxes accounts for a little less than 1/5th of the total tax revenue of the municipal corporations (Rs. 127 crores out of Rs. 685 crores in 1984-85). In Bombay, for example, service tax accounted for Rs. 104 crores of tax revenue in 1984-85 as against the property tax on Rs. 51.4 crores. Several municipal corporations including those of Delhi, Madras, Calcutta, Bangalore and Hyderabad, either do not levy service taxes or collect negligible amounts from this source. The service taxes are a major source of tax revenue in the States of Maharashtra, MP and Gujarat. Their utility seems to be to reduce the stress on property tax and make the tax look like a levy for the services rendered even though there may not be a quid pro quo between tax paid and service received by each tax-payer individually. Even after accounting for service charges and the property tax, the combined share of the two in tax revenue of the municipal corporations remains less than 40%.

8.19 On the other hand, (octroi Rs. 300 crores) and terminal tax (Rs. 29 crores) accounted for nearly 50% of the total tax-revenues of 28 municipal corporations in 1984-85, with other taxes making up the remaining 10% or so. The system of levying octroi and terminal tax is also not equally effective in different cities. In Delhi, for example, this source yielded only around Rs. 22 crores (1984-85) whereas the revenue from octroi in Bombay in the same year was as much as Rs. 173 crores and in Ahmedabad Rs. 35 crores. There is abundant scope for raising additional resources by re-structuring the terminal tax—octroi system in several local bodies so long as the tax stays on the statute book and is not replaced by some other source of revenue.

8.20 All in all, it would seem none too difficult to augment the tax revenues of the local bodies by about 1/3rd or so i.e., by about Rs. 200—250 crores per annum through a purposeful and rational restructuring of their tax systems. This amount of money could then become available for planned urban development including establishment and operation of MPT.

Potential at the State Government Level

8.21 Compared to the Municipal Corporations, the State Governments have comparatively greater access to funds because of the devolution that they get from the divisible pool of central taxes and also because their own sources of revenue, such as sales tax, entertainment tax, excise, etc., have far greater potential and are elastic in nature. (Please see Table 8.3). Even so, the fact remains that most State Governments are perpetually faced with financial difficulties and have to depend heavily on loans and grants from the Central Government. From out of their current inflows, these Governments cannot be expected to take on the substantial burden that would be imposed on them if they were called upon to play their rightful role in the setting up, operation and maintenance of public transport systems at adequate levels. It is imperative, therefore, that special cesses are levied and collected by them for meeting the requirements of urban transport. These could be levied on sales tax, excise, entertainment tax as well as other sources of revenue, not only those of the State Governments themselves but also of other autonomous, semi-autonomous and commercial organisations which gain by burdening the transport infrastructure of the cities. For instance, a very large part of the marketing of agricultural produce takes place in the cities. A cess for urban transport on the turn-over of mandis for agricultural produce can justifiably be levied and effortlessly collected.

8.22 Revenues from taxes on sales and purchase of goods amounted to over Rs. 8,000 crores in 1985-86; those from the State excise duties over Rs. 2,000 crores. A 5% surcharge on these two can thus yield Rs. 500 crores annually. Revenue from taxes on vehicles, goods and passengers, electricity duty and entertainment tax account for over Rs. 2,500 crores. 10% on these would not seem to be excessive and could yield Rs. 250 crores per annum. Taxes on property and capital transactions (i.e. stamp and registration fees and land revenues) accounted for over Rs. 1,000 crores in 1985-86 and a 10% surcharge on this would yield Rs. 100 crores per annum. In case, it is felt that these surcharges may be imposed only within the boundaries of the cities as the funds yielded by them would be deployed on the development or urban centres, their incidence could be accordingly restricted. However, in view of the fact that the towns and cities are indispensable links in the well-being of the hinterland as well, the levying of these charges all over the country would not be illogical either.

Potential at the level of the Central Government

8.23 As has been stated, the services sector of the Indian economy, unlike commodity taxation, has not been tapped to the requisite extent. Important activities in this sector are transport, tourism, banking and insurance.

8.24 So far as transportation of goods and passengers from other than road sector is concerned, the major carriers are railways, shipping and civil aviation. In the fifties, railway's passenger fare revenue used to be subjected to a tax which was almost wholly distributed amongst the States. The revenue from this source at Rs. 11.00 crores in 1958-59 was nearly 1.6% of the total tax revenue of the Central Government of Rs. 692 crores inclusive of States' share of Rs. 162 crores.[8] A 2% surchage on gross traffic receipts of the Indian Railways, which stood at around Rs. 8,500 crores in 1987-88 (RE), would yield Rs. 170 crores annually. As for shipping a good base for taxation would be the tonnage handled at major ports, the figure for 1984-85 being nearly 100 thousand tonnes, 2/3rd being accounted for by foreign trade and 1/3rd by coastal shipping. A surcharge at Rs. 10 per tonne or Re. 1 per quintal of the tonnage handled would yield Rs. 100 crores per annum. Revenue earnings from air services, both passengers and freight, could likewise yield, at 5% surcharge, an amount of Rs. 75 crores per annum. This is based on total revenue earnings of Rs. 1,531 crores composed of Rs. 714 crores from domestic air services and Rs. 817 crores from international services in 1986.

8.25 It is noteworthy that taxes on road transport, namely, import and excise duties on motor vehicles and accessories, tyres and tubes and motor spirits fuel yielded as much as Rs. 1,657 crores in 1981-82[9] to the Central Exchequer. As against this amount, the expenditure of Central Government on capital and maintenance accounts in the road sector amounted to Rs. 176 crores[10] only. On the other hand, the States have been spending much more on the road transport sector than what they are deriving from it. Thus nearly Rs. 1,500 crores realised from the road transport sector were diverted to other areas in the year 1981-82[11] for which the figures are readily available. The corresponding figures at current level would be of a much higher order. It stands to reason that a part of this amount should be earmarked by the Central Government for funding urban transport. If that be not considered feasible, additional resource mobilisation to the tune of Rs. 250 crores per annum from this sector may be resorted to; this implies imposition of 10% surcharge for urban transport on these duties.

8.26 The insurance sector could be made to contribute through a surcharge on premium income which stood at around Rs. 3,000 crores in 1985. A 5% surcharge could, thus, yield Rs. 150 crores per annum. In the case of banks, the base of tax could either be deposits; or advances on certain date(s). Since advances represent the use of funds by the beneficiaries of the banking sector, it may be logical to levy a small surcharge on them. The total advances on the last Friday of June, 1985 of all public sector banks stood at Rs. 45,731 crores. A half per cent surcharge could, thus, yield around Rs. 230 crores per annum.

8.27 On the basis indicated above, the potential of resources that can be raised annually at the level of the Union Government works out to about Rs. 800 crores.

Overall Strategy

8.28 The assessment of potential revenues which can be tapped at three different levels viz., city, State and Centre—made in the foregoing paragraphs has, no doubt, been done in a highly rough and ready manner. The objective was to spell out the logic of making different sectors contribute to the development and management of urban transport and to indicate the appropriate points of incidence and rates of cesses/surcharges which would yield quite substantial additional funds for the purpose. The total assessed potential works out to be around Rs. 1,800 crores per annum. It is by no means suggested that this order of resource mobilisation for urban transport or even for urban development should be undertaken at one go. In light of the overall requirements of funds annually worked out earlier, it would meet the needs of the situation if the resource mobilisation effort of Rs. 500 crores per annum is undertaken at all three levels. This could be divided between them in the ratio 1:2:2. That is to say, the municipal corporations should raise Rs. 100 crores, the States and the Central Government Rs. 200 crores each per annum. The precise sectors/activities from which this order of resource mobilisation would be undertaken from out of the resources indicated above or even from those outside the list, could be decided by groups of experts keeping in mind various relevant considerations.

NOTE:—[3]. Railway Reforms Committee Reports Part XII PP 50—54.

[4]. The increases envisaged; are from the existing share of public transport from 55% now to 75% in future in case of cities with 9 million population, from 25% to 50% for those with 3 million population and 15% to 40% for cities with 1.5 million population.

[5]. Taxpayers, Taxes and Government spending; Perspectives of Taxpayers, Revolt by Robert I. Dowrak, PRAEGER, P-55

[6]. Ibid.

[7]. Ibid.

[8]. World Tax Series; Taxation In India P. 59

[9]. Ministry of Shipping and Transport as quoted in Statistical Abstract of India; CSO Page 286.

[10]. Ibid.

[11]. Ibid.

सत्यमेव जयते

TABLE 8.1

(*Ref. para* 8.06)

Details of working loss & Net loss for the year ending as on 31-3-1987 (Rs. lakhs)

Details of loans from Central Govt. outstanding as on 31-3-1987 (Rs. lakhs)

Sl. No.	Period	Working loss	Deprecia-tion	Interest on Govt.	Net loss (3+4+5)	Capital loan	Ways & Means loan	Total outstand-ing (1+2)
1	2	3	4	5	6	1	2	3
1.	Pre-Corporation period (Upto 2-11-71).	377.87	687.79	456.79	1522.45	1117.90	337.00	1454.90
2.	D.T.C. Period							
	3-11-71 to 31-3-72	56.30	43.80	63.06	163.16	197.00	78.00	275.00
	1972-73 . .	211.90	120.32	203.10	535.32	257.50	231.00	488.50
	1973-74 . .	250.78	138.70	233.62	623.10	585.21	291.00	876.21
	1974-75 . .	530.63	172.42	344.34	1097.39	792.00	685.00	1477.00
	1975-76 . .	441.06	266.73	535.20	1242.99	730.00	590.00	1320.00
	1976-77 . .	59.30	334.42	646.32	1040.04	180.00	80.00	260.00
	1977-78 . .	580.62	340.86	695.76	1617.24	200.00	400.00	600.00
	1978-79 . .	781.16	149.35	818.46	1748.97	475.00	700.00	1175.00
	1979-80 . .	443.66	357.82	969.13	1770.16	825.00	534.00	1359.00
	1980-81 . .	1270.22	401.24	2794.32	4465.78	1736.22	1100.00	2836.22
	1981-82 . .	1938.62	556.11	2397.56	4892.29	1285.15	2000.00	3285.15
	1982-83 . .	3188.04	753.32	3407.47	7348.83	2548.00	2660.00	5208.00
	1983-84 . .	4594.85	869.18	4647.57	10111.60	1529.00	4300.00	5829.00
	1984-85 . .	6683.20	1022.38	6373.50	14079.08	1999.00	6241.00	8240.00
	1985-86 . .	7772.75	1086.25	8833.02	17692.02	1200.00	7500.00	8700.00
	1986-87 (Prov.) .	3806.59	1159.94	11374.60	16341.13	1608.00	3325.00	4933.00
	Total Corpn. period (2)	32659.68	7772.84	44337.03	84769.55	16147.08	30715.00	46862.08
	GRAND TOTAL .	33037.55	8460.63	44793.82	86292.00	17264.98	31052.00	*48316.98

*Excludes initital capital (Irredeemable loan amounts to Rs. 38.13 lakhs).

TABLE 8.2

(Ref. Para 8.13)

Income of 12 *Million plus corporations*

City	1981 Population (Million)	TAX REVENUE							Non-tax revenue**	Ordinary grants	Total revenue (cols. 9+10+11)	Income per capita (Rs. '000s)
		Property	Service	Octroi	Trades & Calling	Animals & vehicle	Others*	Total				
1	2	3	4	5	6	7	8	9	10	11	12	13
Calcutta@	9.2	24.55	0.64	..	2.15	..	14.27	41.61	13.11	12.93	67.65	
Bombay	8.2	54.49	104.35	172.92	..	2.38	0.35	334.49	45.45	13.66	393.60	
Delhi	5.7	36.85	0.64	..	..	0.02	54.70	92.21	28.23	18.17	138.61	
Madras	4.3	13.59	..	..	11.71	0.0007	2.67	27.93	11.71	00.66	40.30	
Bangalore	2.9	8.50	..	..	0.12	0.02	0.99	9.63	3.45	40.01	53.09	
Hyderabad@@	2.5	..	5.11	0.42	0.15	0.10	5.34	11.12	1.84	0.09	13.05	
Ahmedabad	2.5	8.99	5.22	35.07	..	0.52	0.14	49.94	9.21	7.86	67.01	
Pune	1.7	4.53	2.30	19.27	..	..	0.37	25.47	3.16	1.07	30.70	
Kanpur	1.6	2.31	..	11.29	..	0.15	0.14	13.89	0.76	5.16	19.81	
Nagpur	1.3	1.34	4.97	12.07	..	0.0032	0.17	18.55	1.82	5.25	25.62	
Lucknow	1.0	1.58	..	3.01	0.0019	0.11	0.72	5.42	6.79	1.42	13.63	
Jaipur	1.0	..	..	..	..	..	..	..	..	..	..	

*Includes revenue from terminal and toll taxes and misc. sources.

**Generally comprising of (i) Government grants; (ii) Rents from Municipal properties; (iii) Revenue from municipal utilities and Undertakings; (iv) Licence and other fees including those from these municipal institutions; (v) Interest on municipal investments and (vi) Fines.

@Figures shown pertain to the year 1983-84.

@@Figures shown pertain to the year 1980-81.

Note: Except for Calcutta and Hyderabad, the figures indicated against other cities are for the year 1984-85.

Source: Statistical Abstract 1985—Chapter 37.

TABLE 8.3

(Ref. Para 8.21)

Consolidated tax Revenues of States

(Rs. crores)

Items	1975-76	1980-81	1984-85 (R. Es.)	1985-86 (B. Es.)
(i) **Tax on income**	**46**	**108**	**169**	**201**
(a) Agri. Inc. Tax	29	46	54	57
(b) Profession tax	17	62	115	144
(ii) **Taxes on Property and Capital Transactions**	**456**	**576**	**1007**	**1155**
(a) Stamps & Regn.	217	425	692	792
(b) Land Revenue	230	145	306	353
(c) Others	9	6	9	9
(iii) **Taxes on Commodities and Services**	**3044**	**5931**	**11064**	**13049**
(a) Sales Tax	1944	3888	7065	8143
(b) State Excise Duties	436	824	1780	2076
(c) Taxes on Vehicles	203	415	726	854
(d) On Goods and Passengers	167	272	493	566
(e) Electricity Duties	111	228	485	677
(f) Entertainment Tax	150	255	413	446
(g) Others	33	49	102	287
Total	3546	6616	12239	14403

Source: Reserve Bank of India

Statistical Abstract of India (1985) CSO.

CHAPTER 9

FINDINGS AND RECOMMENDATIONS

Introductory Observations

9.01 Union transport systems in Indian cities have evolved in a haphazard manner, leading to far from satisfactory results.

9.02 There is no well-defined duly empowered authority at any level of the Government for taking a total view of urban transport planning, financing and management.

9.03 *The current status of city transport all over the country is way below the threshold of civilised urban living. All the essential requirements, viz., frequency, reliability and passenger comfort are mostly conspicuous by their absence more so during the peak hours.*

9.04 *As a direct consequence of the pervasive neglect of mass public transport (MPT), there has taken place an explosion of privately owned automobile population in all the major cities.* While MPT has been denied requisite funding on account of the so-called resource constraint, large resources have flown into the private automobile sector. Many middle class households have to resort to personalised transport as a matter of compulsion at heavy cost to their domestic economics. *Fuel and road space are being used wastefully.* The bicycle which, upto a time, was an economic transport option, is also becoming hazardous as well as counter-productive in terms of the use of road spaces in the larger cities.

9.05 There is *competition for space and transport facilities between goods and humans,* needing traffic management action for separating and distancing handling of goods from movement of people in time and space.

9.06 *Use of road side spaces for vending and parking of vehicles* reduces the traffic throughput capacity of roads. The needs of traffic flow are not being accorded the due priority over those of parking and vending.

9.07 There is *conflict between mobility and accessibility,* because if access is increased, mobility decreases and vice-versa. For resolving this, segregation of the roads and transport system in terms of mobility and accessibility functions, is the only solution.

9.08 The totally inadequate availability of MPT and the consequent burgeoning growth of privately owned vehicles has converted *city roads into death traps.* Part of the responsibility for the situation lies also with *ineffective traffic regulation and enforcement mechanism. Traffic planning, regulation and control receive low priority* in the normal police set-ups dominated as they are with problems of law and order.

9.09 The lack of requisite degree of *co-ordination between the operation of different transportation modes* is yet another weakness of urban transport system. Absence of harmonisation of functioning of different transport modes results in sub-optimal service from the existing system.

9.10 *The close link between town planning and transport planning is often ignored, while taking decisions on land-use for various purposes. The greed of short-term gain generally overtakes the needs of longer-term planning. Consequently, the imperatives of decongestion and needs of urban transportation fail to be incorporated into urban planning, particularly when decisions are taken on a case by case basis or influenced by extraneous considerations. This pitfall requires to be avoided.*

Urbanisation Trends

9.11 Modernisation and urbanisation can be viewed as the two faces of the coin of technological advance. Urbanisation has become possible as a result of the availability of fast means of transport, enabling accrual of economics of scale from agglomeration of economic activities in large urban centres.

9.12 Our country has been experiencing what may be described as an urban explosion, the population in urban centres having grown six-folds in the first eight decades of the century. This uptrend is likely to continue with the urban population reaching 326 million by the year 2001.

9.13 *As many as 26 cities are expected to cross one million mark and some 78 would be in the range of half to one million population by 2001.*

9.14 *The process of urbanisation is not only inevitable but should be considered as desirable, rather than being looked upon with hostility or antipathy.*

City form and transportation

9.15 City forms have evolved in response to the developments in transportation technology. Uncheked and unplanned growth of cities has resulted in *"ribbon development"* with the intensification of city core and radial growth pushing out the circumference. Such radial growth of cities was natural and cost effective process upto a point. Beyond this point, alternative strategies of city planning, of which urban transport and land-use are the centre-pieces, including *decongestion of city-cores and relocation of economic activities come to the fore.*

9.16 Transportation network and public transportation systems can play crucial role in developing and guiding urban forms and structures along desirable lines, e.g. promotion of corridor development as opposed to sprawled growth of the cities.

9.17 *An imaginative policy on urban-regional development should be pursued. Industrial location policies and other incentives to the towns in the region to contain the undesirable growth of the mother city must be adopted. A comprehensive urban-regional transportation network should be aimed at.*

9.18 *The two-pronged strategy to achieve the desired results would comprise of (a) strict enforcement of land uses calculated to prevent further congestion, encourage de-congestion and re-location and developing newer centres of economic activity at well-selected locales and (b) utilising the potential of urban transport, specially medium and high capacity (upto 50,000 pphpd) transit systems for initiating and directing future urban growth along the desired directions, in an overall regional, rather than city-focussed context.*

Present scenario

9.19 The present transportation systems in large cities in our country are dominated by road-based systems. Bombay is the only city where the number of passengers carried per day by the railways exceeds that carried by the bus system. While in Calcutta and Madras, the share of railway in MPT is around 15%, it is as low as 4% in the Capital city. The good old tram-ways continue to play a significant role in city transport of Calcutta, hauling some 12 lakh passengers everyday. Calcutta also, of course, has the distinction of having the country's first underground Metro—a mere 7.7 km. stretch from Esplanade to Tollygunj acquired at a heavy cost but playing very small role as of now. The conditions of travel on the MPT in all the 4 metropolitan cities whether by bus or by rail or by trams is highly unsatisfactory. The challenge of improving drastically the functioning of MPT in these cities requires to be faced imaginatively by the Central and State Governments.

9.20 In the other 8 million plus cities, buses provide public transport in varying degrees. Only in Ahmedabad, Bangalore and Hyderabad does the MPT with bus fleets of about 1000 make some impact. In other cities, Intermediate Public Transport (IPT) systems hold the field. In Ahmedabad it is the auto-rickshaws, in Kanpur and Lucknow the 3-wheeled tempos and the cycle-rickshaws and so on. Personalised modes of transport, walking and cycling continue to meet a substantial part of urban transport needs in these cities.

9.21 IPT including vehicles such as cycle-rickshaws also plays an important role in the 4 metropolitan cities as well. The role of animal drawn vehicles has, over the years, declined to negligible levels. Finally, the burgeoning growth of personalised transport modes, already noted, makes a sad commentary on urban transport planning in our cities.

Existing financial arrangements

9.22 The present financial arrangements for urban transport are far from satisfactory. It would just not do to continue to place the responsibility for financing laying and operating rail-based city transport systems on the railways whose main concern rightly is with inter-state movement from one corner of the country to another. While their expertise for planning and construction can be utilised, the main responsibility for entire urban transport planning, development and operation and maintenance and for financing must be that of the city authorities.

9.23 The financial health of city road transport undertakings is also far from sound. While low fares are no doubt responsible for their losses, it cannot be denied that there is a vast scope for improving the managerial efficiency of these undertakings.

Future demand scenario

9.24 The rate of growth in the number of trips per capita as well as the average trip lengths is much faster than the growth rate of city population, resulting in exponential growth in the demand for transport services within the cities.

9.25 The availability of systematically and periodically collected data on traffic flows in the cities to the required extent is a major deficiency. *There is need for regular and repeated surveys of traffic flows in different sectors and on different corridors at periodic intervals yielding comparable time series data for making reasonably accurate projections, at the requisite disaggregated levels, of urban travel demand in the future corridor-wise.* Such studies should be so designed as to throw up extensive data on traffic flows all over the city in order to enable planners to draw city transport models capable of analysing and predicting the impact of proposed transport development measures on the system as a whole. as well as on its components, to a reasonably precise extent.

9.26 Even so, the simplistic projections that can be made on the basis of existing scanty information and keeping the experience of other countries in mind, indicate that *the transport demand to be met by the turn of the century in respect of the 5 largest cities of the country as compared to that in* 1981 *would be of the order of* 166% *to* 298%.

9.27 It is evident that such huge traffic volumes cannot be cleared in any way other than by MPT. In order that the available transport infrastructure is able to handle maximum volumes of traffic, it is inescapable that resort to other, less efficient modes of transport, particularly privately owned automobiles and 2-wheelers is minimised. *The over-riding role of MPT in city transport cannot be over stressed.*

Shrot term options

9.28 While long-run solutions to the urban transport problem are simply unavoidable and brook no further delay, the potential which short-term measures hold for easing transportation bottlenecks in cities and improving the situation to a considerable extent, with only marginal investment and within a very short span of time, must not be overlooked. The object of resort to short-term options is to make more efficient use of highways and transit systems already in place so as to move more people and more goods, not just more vehicles.

Transportation system mangement (TSM)

9.29 Transportation System Management (TSM) has, in recent years, emerged as a major instrument of optimising the service from existing transportation infrastructure in the short-run. The experience of France and USA and nearer home in Hyderabad and Madras bears witness to the efficacy of TSM measures.

9.30 Lines of action, particularly suitable for adoption in Indian cities are suggested below:—

(i) improve vehicular flow on existing road system through traffic engineering techniques involving low cost solutions. They may include channelisation, signalisation, parking control, bus stop locations, one way and reversible streets, pedestrian treatment, etc.;

(ii) treat High Occupancy Vehicles in a preferential manner to increase ridership. The action could be through preferential treatment on available facilities, or through favourable fiscal and pricing policies;

(iii) depress the peak period travel through work rescheduling, decongestion; pricing, truck restriction, etc.;

(iv) promote non-auto modes like bicycles and pedestrians through bikeways, park-and-ride for personal vehicle owners, pedestrian grade separation, barriers, etc.;

(v) adopt restraint measures to discourage the use of vehicles through controls, like auto restricted zones, parking restrictions, commercial vehicle prohibition, pricing, etc.;

(vi) improve transit and para-transit services through shelters and terminals, fare policies, integrating with a para transit services, etc.; and

(vii) improve transit management through route evaluation, vehicle monitoring, maintenance, evaluation of system, etc.

9.31 *It should be obligatory on the part of the concerned authorities to include a comprehensive TSM plan in their proposals for capital investments in urban transport. The potential of TSM should be explored and exploited to the full before other costlier measures requiring longer gestation are sanctioned. The Central and State Governments must actively promote the adoption of TSM measures in a thorough and systematic manner. The efforts of city authorities in this direction should be rewarded through Government grants and other inducements.*

Long term solutions

9.32 As has been noted in Para 9.27, the over-riding role of MPT in city transport must form the corner stone of long-term urban transport planning. While city - specific choices would have to be made in the context of the particular city—related demographic profiles, patterns of economic, commercial and industrial activities, income and activity profile of population, likely proliferation of various modes of transport vis-a-vis the available and feasible infrastructure over a long-term perspective and so on, the capabilities and characteristics of various technological options available or likely to be available over the planning span of at least 25 years must be considered at some length.

Available technological options

The technological options available for MPT in the cities may be classified as follows:

A. Road Based Systems comprising—
  (i) Standard Bus
  (ii) Double Decker Bus
  (iii) Electric Trolley Bus
  (iv) Urban Bus

B. Rail Based Systems comprising—
  (i) Tramways
  (ii) Surface Railway
  (iii) Heavy Elevated Railway
  (iv) Underground Metro Railway
  (v) Light Rail Transit (LRT)

C. Magnetic Levitation System

9.33 The Working Group has considered characteristics, capabilities, merits and demerits of each of the above options with a view to its suitability for adoption in different situations and it has arrived at the following conclusions/recommendations:—

Buses

9.34 The Standard Bus currently bearing most of the brunt of city transport suffers from inherent shortcomings. Mounted as it is on a truck chassis and having narrow entrance and exit, it is not convenient to board and alight quickly. It is also not designed for the top-go conditions of city traffic leading to inefficiency in fuel consumption. The Double Decker bus which is in use is also not considered an attractive choice for city transport as it requires longer periods of stoppages, inconvenience for passengers and lower travel speeds. Similarly, longer buses

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whether articulated or with trailer suffer from lower manoeuvrability and greater occupancy of road space. The electric trolley bus has not found favour with Indian urban transport planners though it is in use, to a considerable extent, in foreign cities, e.g. Moscow; the Group has also not favoured it despite its higher capacity and reliability, higher acceleration, pollution free operation and lower maintenance cost as compared to the Standard Bus. This is because the electric trolley bus, being tied to overhead wires for power supply is not flexible and manoeuvrable enough, it cannot overtake the vehicles ahead and if it runs in the middle of the road which avoids conflicts with other road users, it presents problems of embarkation/disembarkation and getting to the side-walks.

The urban bus

9.35 Consequently, the Working Group is in agreement with the Study Group on Alternative Systems of Urban Transport and *recommends the adoption of specially designed Urban Bus with lower floor height and wider doors, one each for incoming and outgoing passengers, with a more fuel efficient engine designed for city traffic conditions and for minimising pollution and providing faster acceleration and better driver ergonomics.* The Working Group is of the considered view that the Urban Bus should be introduced in city transport at the earliest with the target of *achieving* 100% *Urban Bus fleet over a short span of time in all million plus cities.*

Exclusive elevated bus-ways

9.36 Exclusive bus-ways, which, in the existing situation of congestion on the existing arteries, would have to be constructed overhead, have been suggested an attractive option. Subsequent change-over to rail-based LRT with increase in traffic has also been suggested. *The Working Group considers it more pragmatic to plan straightway for grade separated LRT, increasing the capacity in phases either by raising number of coaches or the frequency of services or a combination of the two in step with growth in demand.* It does not consider the proposition of subsequent change-over practicable as any disruption of traffic at a later point of time for the considerable periods of conversion would not be feasible and the overall costs are bound to come out much higher.

Tramways

9.37 Among the rail-based systems, electric tramways running on electric power drawn from overhead wires continue to be in use in Calcutta though they were given up in Delhi over four decades back. Because of their low capacities and lack of manoeuvrability, *the Working Group does not consider tramways as a suitable option for metropolitan cities, with high travel demand and heavy congestion on the roads.* They could be a viable option in case of medium cities depending upon their specific requirements and growth projections.

Surface rail—EMUs

9.38 Branching out from the main line opertion, the surface rail system using electric multiple units (EMUs) have played important role in metropolitan cities, particularly Bombay, Madras and Calcutta. Their requirements conflict with those of main line operations. *Unless the city grows along the available railway lines and the requirements of urban transport can be accorded primacy over those of main line operations, the EMU system has limited utility for the future, its attractiveness in terms of high capacity, low pollution, lower costs, etc. notwithstanding.*

Metro rail

9.39 The underground metro rail undoubtedly would be the answer to the problems of city transport in metropolitan cities with extremely high intra-city travel demand and matching congestion on the roads with little possibility of acquisition of new rights of ways in the desired spaces. The only, indeed the fatal snag, lies in the unaffordably high cost of laying the system, its cost being as high as 10 times those of the surface system. As the experience of Calcutta Metro shows, the system may fail to deliver upto its high expectations unless it is large enough to offer one-shot service to the commuters; laying it on one or two of the busiest corridors might not achieve the desired outcome. *The Working Group therefore does not consider it an affordable option and is of the view that instead of going in for such an extremely high-cost system, other urban planning options viz. relocation and decongestion should be the preferred solutions when traffic volumes exceed manageable limits.*

Heavy rail elevated

9.40 The alternative of having the EMU system run on elevated right of way over the existing arteries is also *not considered a feasible or acceptable mode of urban transport.* The required heavy and wide guideways are difficult to fit into the existing contours of the city roads as it requires larger curvature radii, has low gradient capability and is also heavily noise-polluting as well as aesthetically ungainly.

Light rail transit (LRT)

9.41 *The LRT system which is a highly upgraded version of the tramways appears to the Working Group to provide the golden mean between the low capacity systems which are cheaper to lay out. On the one hand and the very high capacity systems, like the metro which is extremely expensive or the overhead heavy rail which is unacceptable on account of technical, aesthetic and environmental consideration, on the other. This system involves operation of shorter trains of light weight vehicles with lower axle loads—only* 8 *to* 10 *tonnes as against* 19 *tonnes for EMUs and* 16.5 *tonnes for the underground metro. Its minimum radius requirement is as low as* 30 *metres as against* 200 *metres for EMU/Metro and it can climb gradients of as much as* 7% *as against* 2% *in EMU/Metro Rail systems. Its* *acceleration capacities are also higher and energy consumption per passenger kilometre substantially lower.*

9.42. In order that LRT is able to work to its full potential, it would be essential to provide it with exclusive right of way. In heavily congested areas of the cities where resort to high capacity systems is inescapable, such exclusive right of way can be available only either overground or underground. The latter having been ruled out on cost considerations, *the elevated system resting on concrete pillars in the centres of the existing roads is regarded by the Working Group as a highly attractive and perhaps the only techno-economically feasible option for clearing heavy traffic volumes.* The problem of noise-pollution has been tackled to a great extent with the provision of steerable axles and jointed rails and the guideways being comparatively sleek can be made aesthetically acceptable. Some trade off between aesthetics and noise-pollution on the one hand and costs on the other, would, no doubt, have to be accepted. Such systems are operational in countries abroad and have proved to be successful. Reduction of cost must be secured by going in for surface level track as much as possible; at other places overhead track should be chosen as a rule while underground passages may be provided in exceptional cases for aesthetic or other sound reasons specific to the locale. *With fully elevated system, the capital cost per km. of LRT works out to less than half that of the underground metro.*

9.43 The need for reducing headways is essential to achieve high capacities and it is feasible to introduce driverless automatic operation through a fully computer controlled regime. Given achievable headways with modern methods of controls, *the uptodate versions of the system are capable of achieving capacities upto 50,000 pphpd.*

9.44 *Corridor capacities upto 20,000 pphpd* can be *handled with bus systems on 2 lanes, if not 3. per side and traffic regulation in favour of the buses. For higher throughputs upto 50,000 pphpd, the adoption of grade separated LRT would be the answer and its adoption at appropriate places is strongly recommended. For traffic capacities beyond that level, metro rail would be the only solution but in view of its enormous cost, not merely in terms of per km. of line but in terms of laying sufficiently large, operationally viable system, attractive enough for the passengers to use it at or near its rated capacity, the Working Group strongly favours urban planning solutions, namely, decongestion and relocation of selective economic activities, over the high cost underground metro option.*

Magnetic Leviation

9.45 The Working Group's inter-action with BHEL and its study of available information on this developing system show that it is not a proven option. Its operational and commercial viabilities are yet to be established, particularly for the rough and heavy traffic conditions of our country. In conclusion, though the Group considers Maglelyl as a highly promising technology for the future, it does not, as yet, consider it ripe enough to recommend its adoption.

Modal Split

9.46 *The Working Group recommends the following targetted modal split in favour of MPT which it considers achievable as well as essential for obtaining optimal solution to city transport problems:—*

S. No.	City Size	Targetted Modal Split
1.	5 million plus	80%
2.	2—5 million	65 to 70%
3.	1—2 million	50%

Intermediate Public Transport (IPT)

9.47 The importance of IPT in urban transport should not be lost sight of. By itself or in conjunction with MPT, it is the only instrument through which the commuters who do not go in for personalised modes of transport can secure for themselves an almost door to destination service. *The Working Group recommends a well regulated IPT system to be promoted through appropriate policies as a complement to MPT. Appropriate measures of gradual but planned and assisted replacement of muscle drawn vehicles with non-polluting mechanical vehicles is also recommended.*

Management

9.48 *The need for creating a management structure for urban transport capable of overall planning, development, coordination and direction cannot be overemphasised.* The recommendations of the Working Group on management aspects of urban transport are presented hereafter.

At city level—UMTA

9.49 *In the absence of a really powerful city government, as in the western countries, the need for creating a single point of authority for the entire range of urban transport planning and management action at the city level must be accepted. The Working Group, therefore, recommends the setting up of Unified Metropolitan Transport Authorities (UMTAs), by the respective State Governments in all million plus cities by requisite legislation, with well-defined, extensive role, responsibility, power and authority.*

9.50 *The role and responsibility of UMTA would extend to all modes of transport, with the aim of securing:*

(i) *A high level of coordination among them in order to exploit the entire system optimally. Its responsibilities will start right from the* *planning stage to the laying out of the system and its subsequent operation and maintenance. The existing as well as future MPT undertakings would be brought under UMTA. It would play a crucial regulatory role and also have the authority to regulate and control the use of private modes of transport in the overall interest of the optimal functioning of the city transport system. Its authority would extend to regulation of goods traffic in the city and it would also be responsible for keeping the traffic arteries free from encroachment by efficient enforcement of traffic regulations, alongwith authority to oversee and direct all aspects of traffic engineering throughout the city.*

(ii) *The UMTA would require to be vested with the matching power and authority to enable it to play its assigned role effectively. The emphasis in UMTA will have to be on the word "UNIFIED". The unification of direction, control and command over the transport system of the city and its environment would, in fact, be the very raison d'etre of UMTA.*

(iii) *UMTA's geographical jurisdiction should be large enough to enable it to plan and manage the city transport system in a long-term perspective of at least 25 years. The Group recommends that the jurisdiction should go beyond the limits of the city and extend to that of the Development Authority and, where feasible, even to an area beyond that of the Development Authority so as to enable it to cover the whole or most of the region on the basis of its relevance to long-term transport planning.*

(iv) *Since close coordination between land use and transport planning and management is essential, UMTA may, to start with, form a part of the Development Authority itself. This may be done either (a) by creating the authority as a separate body with its whole budget, management and control structure but making it subject to overall superintendence and control of the Development Authority, or (b) by enlarging and strengthening the Development Authority itself with requisite human and material resources and equipping it with additional powers and authority, through the amendment of the Development Authority Act, with a separate section on UMTA added to it. In either case it is of essence that the Authority is equipped with powers that are exercised presently by the State Transport Authority as also those of the Transport Directorate, namely, licensing, registration, etc., of vehicles drivers and so on. It should also have the power to levy tools, fees and taxes on specified category of activities connected with the sphere of its own operations. The composition of the Development Authority may also have to be amended in order to equip it for undertaking the additional responsibilities in respect of urban transport.*

At the State Level—Separate Department

9.51 In the State Governments as well, it is essential to create a single point of authority for urban transport equipped with requisite knowledge, experience and expertise in the field of urban transport planning, policy and implementation. *The creation of a separate Department for Urban Transport in the State Governments is, therefore, strongly recommended.* It may be placed in the same Ministry of the State Government which deals with municipal bodies and development authorities so that the necessary integration between land use and urban transport planning can be secured. Apart from providing overall guidance and direction to the UMTAs in the State, such a Department will provide leadership to non-UMTA cities in urban transport planning and management; *such planning should be initiated by the Department for all cities as they cross the 5-lakh population mark.* The State Department would alsobe responsible for channelling finances and extending other support to city authorities and UMTAs.

At the National Level

9.52 For identical reasons, *the creation at the national level of a separate and distinct Department of Urban Transportation, either under the Ministry of Urban Development or even as an independent Ministry of the Central Government, is strongly recommended.* The major role of the Department would be to promote specialised studies, research and training of personnel in the field of urban transport, to coordinate studies and research, to create a country-wide data base and documentation covering world-wide trends and experience, to provide leadership and discharge an overall coordinating role in relation to the State Governments and be responsible for channelling of funds to State Governments and UMTAs as per the financing pattern suggested hereafter.

Financing

9.53 In the context of the undisputed need for according high priority to city transport, especially to MPT, in urban planning and ensuring commensurate flow of resources for the purpose, the financing strategies and options have to be chosen in an innovative and bold manner.

SUBSIDY TO URBAN TRANSPORT NECESSARY AND JUSTIFIED

9.54 *The Working Group fully endorses the conclusions arrived at by the Railway Reforms Committee as well as the Study Group on Alternative Systems of Urban Transport that public transport cannot be expected to be self-financing. Taking into account the overall savings to the economy and improvement in productivity which must logically flow from a smooth city transport system, there is ample* *economic justification for subsidising the establishment and operation of MPT systems.*

9.55 *Experience the world over shows that fare box revenue falls considerably short of the revenue expenditure of city transport undertakings. The experience of our Undertakings is no different. Analysis of the finances of Delhi Transport Corporation (DTC), despite the packing of passengers like sardines, show heavy accumulation of losses over the years but most of these are accounted for by provisions on account of depreciation and interest on loans. The recent waiver of interest/dividend liability on capital investments of Calcutta Metro, which is expected to be around Rs.* 850.00 *crores, is proof enough of the Governments recognition of this fact.*

INGREDIENTS OF BOLD APPROACH TO FINANCING

9.56 *The essential ingredients of a bold and fresh approach to the financing of urban transport should, thus, be—*

(a) *The capital cost of setting up the system including provision of rolling stock should be met entirely from out of funds which do not have to bear any interest or dividend liability;*

(b) *The fares of MPT should be low enough to secure the utilisation of the system, established at huge cost to the society, to the fullest extent, particularly enabling the poor to go about the business of earning their livelihood in any part of the city without undue financial burden. It should also be such as would dissuade the better-offs from using social as well as privately expensive personal vehicles.*

(c) *Each identifiable component of the economy of the city benefiting from or burdening the urban transport infrastructure must be made to contribute to the capital as well as operating cost of the system.*

(d) *Fiscal and other measures should be adopted aimed at erecting disincentives and barriers against avoidable and inefficient use of overstrained transport infrastructure by personal transport modes. The resource mobilisation effort must come from City Corporations/Development Authorities, State Governments and the Government of India. The major participants in economic activity, who should contribute to urban transport financing are industry, banking, insurance, transportation, agricultural marketing, tourism, communications, recreation and so on. Pooling of resources at all three levels of Government must be brought about.*

(e) In order that the burden on public resources be reduced, the Working Group favours *regulated and selective privatisation.* While certain routes may be handed over to private operators on mileage or some other appropriate basis, they must be made subject to *close supervision and regulation through conductors and other superior staff of UMTA or City Transport/Bus Undertakings.*

CESS/SURCHARGE FOR URBAN TRANSPORT

9.57 *The Working Group considers cesses/surcharges for urban transport at suitable points, amenable to the respective direction and control of the governments at the three levels, as an effective way of mobilisation of financial resources. The sources which can be tapped at the level of city corporations are taxes on property, particularly in view of the continuing boom in urban property values, pay rolls/professions tax on all persons having their place of work within their jurisdiction, octroi and terminal taxes, etc. These sources are at present inadequately tapped and what is even more noteworthy, the systems and the machinery for their collection are highly inefficient and inept. A revamp of the methods and management of tax administration coupled with imposition of levies at acceptable levels can yield an amount of Rs.* 250 *crores per annum which could be utilised for planned urban development including establishment and operation of MPT. The Working Group recommends that the city corporations may, to start with, raise Rs.* 100 *crores per annum by levies earmarked for city transport.*

AT STATE GOVERNMENT LEVEL

9.58 *The sources of tax on which cess/surcharge for urban transport may be imposed at the State Government level are Sales Tax, Excise and Entertainment Tax, marketing of aggricultural produce, taxes on vehicles goods and passengers, electricity duty, taxes on property and capital transactions and so on. Cesses/surcharges at acceptable rates can yield amount of the order of Rs.* 800 *crores or so per annum: the Working Group recommends that to start with the State Governments may collectively raise Rs.* 200 *crores per annum for urban transport.*

AT CENTRAL GOVERNMENT LEVEL

9.59 *Similarly, at the level of the Central Government, the potential from cesses/surcharges on major sectors of transport including shipping, banking, tourism, insurance would yield an estimated Rs.* 800 *crores at accepted levels of rates. The Working Group recommends that to start with Central Government may raise Rs.* 200 *crores from these sources for extending support to urban transport planning, development and operation.*

EXPERT STUDIES FOR SPECIFIC LEVELS & REFORMS

9.60 The considerations which guided the Working Group in making the foregoing assessment of feasible resource mobilisation effort at different levels of government and the premises on which the suggestions are made have been set out at some length in the preceding chapter. The picture, no doubt, is rather a rough and ready one. The precise sources/activities to be tapped and the rates, cesses and surcharges to be levied in each case will differ from place to place and level to level. *The Working Group recommends that Committee(s) of Fiscal Experts must be deployed to undertake in-depth studies and make well-considered recommendations for specific levies to be imposed at different places/levels for raising additional resources for urban transport including measures for streamlining tax administration, keeping in mind the considerations and suggestions contained in the preceding chapter.*

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